ELECTRIC RAILWAY JOURNAL

DAILY EDITION

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Volume 44 Number 15A

October 13, 1914.
New York—Atlantic City

McGraw Publishing Co., Inc.

For Safety at Sidings—For the Elimination of Troublesome, Time-Wasting "Fishing" for Trolley Wire

The RYMCO

High Speed Automatic Trolley Switch

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BRAKE SHOES
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THE RAILWAY MATERIALS CO.
OFFICES CHICAGO NEW YORK

See the Products at our Booth No. 535

iew on the Illinois Traction System showing ding equipped with RYMCO High Speed utomatic Trolley Switch, which, together with he Steel Back Brake Shoe, manufactured by the ailway Materials Company, are standard on he Illinois Traction System.

Westinghouse Traction Brake Co.

Index to Exhibit:

BRAKE EQUIPMENT:

(a) Universal Electro-Pneumatic Brake Equipment Complete for one car, illustrating the latest advance in braking electric passenger trains.

(b) Featherweight Straight Air Brake Equipment with Emergency Feature, illustrating the simplest form of semi-automatic apparatus (recommended for a limited range of service conditions) and the possibilities in the direction of minimum weight.

MOTOR-DRIVEN AIR COMPRESSORS:

(a) D-1-F high grade 16 ft. capacity compressor. The overall efficiency of the D-1-F compressor is very good and its service record to date exceedingly satisfactory.

(b) New "flat" type light weight D-1-H compressor; 16 ft. capacity, simple in construction, and particularly designed for low side cars and small clearances.

(c) D-2-K 1200 volt 25 ft. capacity compressor illustrating modification of type for high pressure direct current service.

(d) D-3 dynamotor compressor, 36 ft. capacity, illustrating the advantages of combining the dynamotor and air compressor.

SYNCHRONIZING SYSTEM:

Exhibit illustrating perfected system of governor synchronizing to insure equal distribution of compressor labor in trains; various forms of governors are also shown.

SIGNAL EQUIPMENTS:

Exhibit illustrating improved methods of signaling through electric trains.

CAR COUPLERS:

Exhibit illustrating the latest developments in the adaptation of the Westinghouse Car, Air and Electric Coupler to the requirements of modern electric train service.

MISCELLANEOUS:

Exhibits covering various forms of Brake Valves, samples of Extra Quality Pipe Fittings, Case Hardened Pins and Bushings, Air Strainers, and other details more or less closely related to air brakes.

The Westinghouse exhibit is arranged to show conveniently and quickly much of what has been accomplished to date in the line of braking. You are cordially invited to visit our space on the Million Dollar Pier.

Westinghouse Traction Brake Company

Pittsburgh, Pa.

NEW YORK	PITTSBURGH	CHICAGO	ST. LOUIS
City Investing Bldg.	Westinghouse Bldg.	Railway Exchange Bldg.	Security Bldg.

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Electric Railway Journal

DAILY EDITION

Published at the Annual Conventions of the American Electric Railway Association and Its Affiliated Associations

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Vol. XLIV NEW YORK—TUESDAY, OCTOBER 13, 1914—ATLANTIC CITY NO. 15A

PROGRAM FOR TO-DAY

CONVENTION MEETINGS

9:00 a.m.	Meeting of the Transportation & Traffic Association, Greek Temple, Convention Pier.
9:30 a.m.	Joint Session of Engineering Association with Claims and Transportation & Traffic Associations, Greek Temple, Convention Pier.
9:30 a.m.	Opening meeting of Accountants' Association, Accountants' Hall, Second Floor of Convention Pier
11:00 a.m.	Session of Claims Association, Claims Hall, Convention Pier.
11:00 a.m.	Joint Session of Engineering Association with Transportation & Traffic Association, Greek Temple, Convention Pier.
2:00 p.m.	Opening meeting of American Association, Greek Temple, Convention Pier.

ENTERTAINMENT

10:00 a.m.	Obstacle Golf, Marlborough-Blenheim Lawn.
11:00 a.m.	Concert by Engel's Orchestra, Lobby, Convention Pier.
11:00 a.m.	Trapshooting Practice, End of Convention Pier.
3:00 p.m.	Ladies' Cards, Parisian Garden, Convention Pier.
4:00 p.m.	Obstacle Golf, Marlborough-Blenheim Lawn.
9:00 p.m.	Informal Dancing, Ball Room, Convention Pier.

The Opening of the Convention

The association is again fortunate in weather conditions for its annual convention. Atlantic City can do no better, and while the pier is well protected against rain, the kind treatment afforded by the weather bureau this year, at least so far, during convention week has certainly been appreciated. The exhibits show no sign, either in number or quality, of any financial stringency, and in point of individual and collective interest, are equal, if not superior, to those of preceding conventions. It is yet too early to say much that is definite in regard to the number of attendants. According to the secretary's office the advance registration was as large as usual, namely about 700, and as the sessions of the American and Accountants' Associations do not begin until to-day it is hard to tell how many others will arrive until this afternoon. This year's arrangements for both the exhibits and the technical sessions are exceptional and there is every reason to expect as successful a convention as any of previous years.

The Association and the Colleges

We do not usually think of the American Electric Railway Association as closely related to the colleges, and it is true that the relation has not been as close as it can be made. It would be an excellent plan for the railway association to co-operate with the National Electric Light Association in the effort which is being made to bring the industry and the schools closer together. It is understood that a much larger number of teachers than usual will attend the Atlantic City convention at the suggestion of the association. If they receive a hearty welcome they will want to come again. Let some of our good "mixers" show the newcomers that the practical man is in sympathy with the efforts of the teacher.

Standard Codes Now in Permanent Form

With the report of the committee on rules which was presented yesterday, the standard codes for city and interurban service have at last taken practically permanent form. The fact that during the last five years both codes have been made subject to extended annual changes has militated against their general adoption, but now that they have reached the point where the probability of further extended revisions is exceedingly slight there exists no longer any reason why they should not be accepted in toto by every electric railway in the country. Such minor changes as may be made from time to time in future may easily be included by the insertion of printed slips. Indeed, it is to be hoped that this procedure will be followed promptly by all those now using the city code in connection with the revision of rule 55 which was approved at yesterday's meeting, and which was the only change in the city code. The rule, as it stood before revision, was opposed by a number of well-known railway companies upon the plea that it gave offense to passengers, and we are glad that a greater latitude has been permitted in the information which employees are permitted to give out to patrons.

The Exhibits

It is not difficult for the experienced observer of the annual exhibits of the American Electric Railway Manufacturers' Association to see how the latest problems of the industry are reflected in the elaborate displays of specific groups of apparatus. This year the signal manufacturers deserve to be pointed out for exceptionally good work. Not only have they made many improvements in their apparatus during the past year, but they have also demonstrated that a signal system can be used for other purposes than elimination of accidents. Thus one type has lately been set up temporarily to replace flagmen on construction jobs, while another has accelerated traffic by eliminating train orders. It is also complimentary to the work of the American Electric Railway Engineering Association that several of the manufacturers are announcing their adoption of the standard A. E. R. A. aspects. The signal exhibits find a close second in the variety and ingenuity of fare-recording apparatus. In this line the latest developments have been in the direction of quicker transfer distribution and combination fare boxes for coins, metal tokens and tickets. Thus, while the prepayment method has long been an accomplished fact, there is still much room for apparatus which will enable one conductor to handle more readily the two hard conditions peculiar to American electric railway operation—the long big-capacity city car and the rush hour. Closely related to the fare-recording devices are some marvelous machines which sort, count and bag all the coin that an electric railway may be fortunate enough to collect.

The apparatus maintenance end of the electric railway business is represented this year by an extraordinary development of welding systems which are doing wonders to prolong the life of special work and to simplify the work of the trackmen in the installation of welded joints, while the handy portable welders now available for car shop use should cut down the scrap pile to still smaller proportions. It is almost needless to point out the numerous betterments in car equipment. The truckless car and the radial axle truck have taken another step forward in aiding the production of light-weight cars of "double-truck" length. The ventilated motor, lighter contactor control, voltage regulators for car lighting, headlights and heaters are among the electrical features which are still making advances toward greater economy and usefulness. The varieties in ventilators, the increased use of glazed sanitary fittings and the advent of illuminated route number signs in place of the exasperating block destination indicator are among the changes that show how the immediate comfort of the public is being looked after by the electric railway operator.

Conventionalities

Go to Abrahams and get fitted for a coat.

"Break we our watch up." Al "Shakespeare" Green.

Archbold, of Archbold-Brady, is piering about as arch and bold as ever.

Phoney Films No. 27: Beau Brummel McConnaughy in a straw hat on Oct. 12.

On the committee on taxation matters—W. F. Ham and F. W. Bacon. There's a team!

On Sunday Mr. and Mrs. S. S. Crane arrived from Altoona. Altoona's loss is a big gain for us!

The committee on entertainments has requested that all delegates and guests wear their badges at all times.

Champions may come and champions may go, but Pop Wilkinson still remains commander-in-chief of the roller chair brigade.

The Palmer family, so ably represented by G. W. and L. H., is long on convention honors, holding chairmanships in two committees.

J. S. Speer denies that his brushes are used for dusting clothes. He says they are intended for removing currants from electric plants.

An epigram sent in by the conductors of the Indiana Union Traction: "Take care of your Nicholls and the inspectors won't get you."

Have you seen Tom Casey's Million Dollar Pier on the Million Dollar Idea? Or is it the Million Dollar Idea on the Million Dollar Pier?

No, Clarisse, the name of the white-haired gentleman at the front door is not Paul Dohrman nor does he come from the Detroit United Railways.

At 3:20 p. m. Monday we lamped presidentissimo C. N. Black at the illuminated scoreboard of the Braves-White Elephants. Fans, fancy that!

Well, anyway, T. D. B. Griffin says that it's good practice to operate without train orders. If you'll go 'round to the booth he'll prove it with his little model.

J. P. Barnes of the Syracuse Interurban is reputed to be a singer but we don't believe it. Where is the mop of hair which invariably accompanies musical talent?

W. C. Callaghan, who resides in the shadow of the historic Last Chance Gulch, is inviting all of his old friends to go to Helena with him after the convention.

Nate Garland and Tom Mullaney got inside the money at the Engineers' Club golf tournament last week, the latter taking thirty-one putts on the second. Some golf!

No formal golf tournament is planned for this convention, but the usual arrangements have been made with the Atlantic City Country Club for those desiring to play.

Mr. and Mrs. George A. Barnes stopped at our booth on Sunday but not long enough so that all of us had a chance to meet the delightful Mrs. Barnes. Please come in again.

E. S. Fassett and his green velour hat are welcome visitors. The hat is bright green. Mr. Fassett is also bright (no, not green) from head to foot.

We were more than flattered on Sunday to learn that Mrs. H. M. Sperry is a constant reader of the Electric Railway Journal. It is indeed delightful to have secured the interest of so charming a scientist.

The kindly smile and keen gray eyes of our Engineering president, J. H. Hanna, illuminated the Boardwalk on Sunday, so we knew in advance that yesterday would mark the beginning of the best convention ever held.

H. G. Stott and Mrs. Stott, together with their son and daughter were among the very early arrivals on Saturday. Mr. Stott is responsible for the delivery of more power to electric railways than any other man in the world.

Newton W. Bolen, the banquet king of New Jersey, is snuffing the salt sea air like a Patagonian stallion to get up an appetite worthy of the next series of testimonial dinners given to him by his employees. We love you, too, Newt!

Be sure to try your skill at skee-ball at the Aquarium Court. It's the latest craze. Play as often as you like, but come early so everyone will have a chance. Prizes will be awarded to ladies and gentlemen who make the highest score.

Direct evidence as to the real value of the convention: B. J. Denman, assistant general manager of the United Light & Railways Company, has come here to investigate and get suggestions on several problems that have come before him recently.

When Messrs. Hackett and Renshaw, who are attending their first electric railway convention and who were introduced by Joe Renton to the industry via the Brighton punch route, they complained about the rocky road. These Federals aren't up to big league stuff yet.

Handsome Joe Alexander, chief engineer of the Cleveland Street Railway Commission, is having a hard time walking alone on the Boardwalk; commissioner Pete Marktwain Witt having been compelled to remain in Cleveland to explain the single tax to J. J. Stanley.

Having organized his work down to the finest detail, Secretary Burritt is now enjoying life. Yesterday, before breakfast, we saw him racing on horseback with Harlow Clark. He won by a length because his horse was sharper in front than the editor's and offered less resistance to the wind.

The genius which inspired the Bulletin Board placed on the ramp at the entrance to the Convention Pier certainly is entitled to credit for the position and prominence of it. Here every day will appear the entertainment provided that day for the members and guests and any special notices or added features that have presented themselves.

No more sailing. Yo! Ho! Nor a bottle of rum. No! For Dan Smith's good ship Virginia which has carried many a good railway friend on a pirates raid, now rests on the bottom of the Detroit River. On her last eventful voyage it is whispered that George Radcliffe of Cleveland and Frank Coates of Toledo played prominent parts.

H. H. Adams, the guy who stopped the holes in the sieve of receivership on the old Metropolitan, arrived on Sunday. He is now chairman of the committee on standards and, in addition to his other manifold duties, is also a member of another committee which has some important work to do at this convention. Ask him what that little book in his pocket is for—Martin Schreiber has one just like it, and so have several others.

General Manager Mutt and Little Jeff, the master mechanic, became separated yesterday from their genial friend and mentor, Miles Lambert, the prominent Irish engineer. "Jeff," remarked the general manager, "where is good old Lamb?" "Boss," replied Jeff, "You'll find him in the Shelburne grill, matching pennies with Miss LeGould." "This is the life," returned the general manager. "Let us join the game. We can see those pressed-steel motors when we get back home."

The convention opened yesterday morning with a good-sized attendance amid an outburst of patriotic music and colored lights in the foyer. F. Pincus presented Engel and his orchestra, which played "A Day at West Point," a blending of the famous music of the North and the South. The delegates remained standing while the strains of the Star-Spangled Banner were played, and the American flag, outlined in electric lights overhead, flashed its message of success to the 1914 convention.

CORNELL A. E. R. A. REUNION

Following the precedent establishment last year Cornell men of all classes '69 to '14 will gather for lunch at the Marlborough-Blenheim at or about 12:30 o'clock on Thursday. Men are requested to register promptly for the lunch at the Manufacturers' Association desk with Wylie Brown or W. L. Wright.

THE ST. LOUIS TRAIN

Fifty-five railway and supply men from St. Louis and the southwest, and a few ladies, arrived at Atlantic City at 3 p. m. Sunday. Elaborate preparations were made for a special train, but at the last minute it was found that quicker time could be made if special cars were attached to one of the regular fast trains going east. As a result of this decision the four special all-steel cars were set in with the regular seven-car train of the Pennsylvania's "New Yorker," which is a 24-hour train from St. Louis to New York City. At Harrisburg the four cars were made up and came through as a special train. In this way the conventionites reached here two hours earlier than would have been possible under the original plan.

The trip from St. Louis was made without unusual incident, and aside from the fact that some of the regular patrons of the "New Yorker" persisted in referring to the electric railway men as electricians no one would have known but that the train was a convention special. Several delegates picked up at Indiana and Ohio points came through on the train.

LADIES' AUCTION BRIDGE TOURNAMENT

The Parisian Garden has been especially provided for the afternoon card games, concerts and thé dansants. The ladies who intend to participate in the card games this afternoon are asked to be present for play promptly at 3 p. m., Oct. 13. The finals will be played to-morrow at the same place and same hour.

The prizes to be awarded for the winners of the contests are quite up to the standard set in past years, and will be given to the highest two teams or pairs of the fourth round. Full information in regard to the conditions of the games are published on page 20 of the entertainment program.

TRAP SHOOTING

All those who have brought guns are probably keen for the sport awaiting them on the end of the convention pier this morning at 11 o'clock, when the clay pigeons commence to fly over the waters of the Atlantic. Competition is open to wearers of the official badge, and the committee is hoping that this contest will bring out the lady shots of the convention. Practice shooting will be held on Tuesday from 11 a. m. to 1:30 p. m. and on Wednesday from 8 a. m. to 9:30 a. m. This promises to be an annual event. The tournament shoot will start Wednesday at 2 p. m., and there will be three contests, namely, for novices, supply men and railway men.

A professional trap shot will supervise the shooting and give instruction and advice. Guns and ammunition are provided to those that did not bring their own.

GETS 'EM GOING AND COMING!

We have heard of pay-as-you-enter cars and also of pay-as-you-leave cars, but P. N. Jones, of Pittsburgh, expects to put in operation a pay-as-you-enter, pay-as-you-leave car. Three-quarters of the space in this car will be run on the pay-as-you-enter principle and the other quarter on the pay-as-you-leave principle. This is the plan which will be applied to Mr. Jones' double-deck cars, which have been described in this paper, and beginning on Friday of this week the full service on the Fifth and Highland route in Pittsburgh will be furnished by these cars.

In these cars the entrance and exit are widely separated, and there are separate staircases leading to and from the upper deck. The conductor is placed between these stairways so that all of the passengers who use the upper deck and the passengers at one end of the car who use the lower deck have to pass him. These are the passengers who pay as they enter. The passengers in the rear lower deck are near the entrance door and pass the conductor only when they leave the car. These are the pay-as-you-leave patrons.

The idea is a novel one and Mr. Jones is curious to know how it will work out but is sanguine of the result. He has issued a folder to explain the system and has asked the co-operation of the public in making a success of this type of car.

YESTERDAY'S TEA DANCE

The afternoon concert and thé dansant, given in the Parisian Garden at 3 p. m. yesterday afternoon, made an instantaneous hit, and this feature will be continued up to and including Thursday. The setting followed yesterday in the foyer was very attractive, and the graceful tables, chairs and summery awnings bore a striking resemblance to those to be found on the boulevards of Paris and in the Champs d'Elysée and which are ever popular with the French crowds. The general effect fully justified the name of the Parisian Garden, selected by the entertainment committee.

THE CHICAGO SPECIAL TRAIN

There was a lot of fun and a fine crowd of jolly people, nearly 100 in number, on the Chicago Convention Special. This train ran from Chicago to Atlantic City over the Pennsylvania lines in less than twenty-two hours. The equipment was the counterpart of the Broadway limited. Friend Bixby, of the Chicago office of the Pennsylvania line, started the party eastward and mingled with the crowd until a doubtfully late hour. Some claim he detrained at Warsaw and others at Lima. At any rate he had the thanks of the crowd. This year's Chicago convention train brought a larger proportion of railway men than ever before.

This paragraph is about the ladies. There were twelve charming ones on the train, and it should be said that "a pleasant time was had by all." Most of the ladies played cards Saturday evening and watched the scenery Sunday. Through the courtesy of H. E. Chubbuck, vice-president executive, Illinois Traction System, packs of playing cards were distributed. There were several gentlemen, we desire to record, who brought their own cards, and one who brought some rattley things in a little black grip. Five gentlemen passed these little things back and forth until nearly morning, when one man had most of them.

Under the guidance of E. H. Noyes, whose middle name is Aluminum, a pool was organized, collected, posted, won and distributed. It was arranged to give three prizes to those who came nearest to having the time at which the observation platform passed the Pennsylvania shore abutment of the Delaware River bridge. Before announcing the winners, let us say that this was a contest of luck, not guessing ability. Now the winners were: Harry Monroe, General Electric Company, or Mrs. Monroe, for first prize. Certain people say Harry kept the money and others say they saw him give it to his wife. The second prize was drawn by No. 13, Eugene Soules, manager publicity department Illinois Traction System, and the third prize went to John F. Decker, general manager Auto Utilities Manufacturing Company, Chicago.

On the arrival of the train at Atlantic City at 3:39 o'clock Sunday afternoon, the Chicago contingent scattered to their various hotels and took up their individual parts of the busy convention life.

THE WEEK'S ENTERTAINMENTS

Each year the entertainment committee, with past records to exceed, has had a harder task in presenting a new, interesting and entertaining program, but this year there need be no doubt that that ideal has been fully accomplished. Carnival night, which has been arranged for Wednesday, is the exceptionally novel offering of this year, and regarding it the committee states euphoniously that surprises galore will be in store. The music, which has always been excellent, is quite up to the standard of previous years, with Engel's Orchestra playing for the concerts, as well as for the formal and informal affairs. Special attention has been given to the arrangement of the musical programs so that selections from grand opera, modern dances and the season's latest musical successes will be included.

Obstacle golf has been revived this year by special permission of the Messrs. White of the Marlborough-Blenheim, who have given the entertainment committee permission to use the entire front lawn of that hotel. An exceptional and interesting course has been laid out through the courtesy of Gimbel Brothers, of Philadelphia and New York, who assisted in its arrangement. This is a game that everyone can play, and the large crowds that have taken advantage of the opportunity to play this game in previous years suggest an early handing in of names. The bulletin board will announce the hour when the members of the committee in charge may be found on the course.

Entirely new to the convention this year will be the trapshooting contest. A number of experts have brought their own guns, and a lively and interesting event is promised. Novices are invited to join and guests will be provided with plenty of guns and ammunition. Skee-ball alleys, installed through the courtesy of J. D. Este Company, Philadelphia, have been located in the Aquarium Court, and prizes are offered for the ladies and gentlemen securing the highest number of points.

The dances, which have been so generally popular, have been arranged for Wednesday and Thursday afternoons. Alternating with the dances, tea will be served, and, in addition, an excellent concert program has been arranged. Special dancing features will be introduced at the formal promenade concert and ball which will take place on Thursday night in the ballroom of the Convention Pier.

The special privileges accorded the delegates and their guests at the convention and a program of the entertainments for the week have been published in an official program, copies of which are distributed from the registration booth.

MONDAY AFTERNOON CONCERT

The second concert presented by F. Pincus, of Philadelphia, with Engel's Symphony Orchestra in connection with the dansant Monday afternoon offered a most charming program. This included the overture "Triumphant Banner," Paull; Selection from "Faust," Gounod; Intermezzo "Eleanor," Deppen; overture "Zampa," Herold; selection from "Baron Trenck," Albini.

CARNIVAL NIGHT

It is intended that Wednesday's Carnival Night shall surpass all previous attempts at furnishing fun for the delegates and their guests. Many surprises are in store. There will be contest dances and the judges will be the audience, who will vote for their favorite dancers by ballot, insuring an absolutely popular choice. This is an opportunity for those with new steps to try them out. Kee-No dances will occur at different periods during the evening, and when the big dial is spun on the wheel of fortune, anybody may be the lucky one. It is hoped that every one will be sure to be on hand and help in the enjoyment of the evening.

FREE ROLLING CHAIRS

The rolling chairs will be available between the hours of 9 a. m. and 7 p. m., October 12 to 16 inclusive, and are free to the wearers of the official badges. A rate of 25 cents per person will be charged in the evening for direct runs from Convention Pier to hotels or from hotel to hotel. The rolling chair service is again in charge of W. H. Wilkinson, of the Pressed Steel Car Company.

THE ANNUAL RECEPTION

The annual reception opened the social activities of the convention last evening. The visiting delegates and their guests were received by President Charles N. Black, of the American Association, assisted by the officers and ladies of the affiliated associations. The receiving line formed to the left of the entrance, and the usual large number of the members and guests passed along the line. This is an opportunity that is being more and more appreciated, as an acquaintance with the heads of the various associations is bound to lend additional interest to the meetings. The reception opened with a concert by Engel's Orchestra. Promptly at 10 o'clock the officers and their ladies who had assembled in the booths around the ballroom were escorted to their position in the receiving line.

Madame Auld charmed everyone with her selections and provoked much enthusiasm and applause, responding gracefully to the audience's request for encores.

The general setting with the myriads of soft lights fused together with the handsome gowns of the ladies, presented a fairyland. Informal dancing continued until an hour consistent with the work ahead on the morrow, and all agreed that the dance program outlined for the week would share honors with the convention work.

HIGH SCORES IN SKEE-BALL CONTEST

The popularity of the skee-ball game in the Aquarium Court is shown by the fact that 1345 people played during the first day of the contest. The high scores up to 6 p. m. were as follows:

Mrs. W. E. Bryan.....180	D. H. Ackerson.....240
Mrs. George Allison....150	J. R. Ong.....240
Mrs. C. Chamberlain...150	A. K. McCarthy.....240

OBSTACLE GOLF

One of the popular diversions at the convention this year promises to be obstacle golf. One advantage of this game is that it does not require an expert knowledge of golf. Everybody can play obstacle golf, and if a person has never handled a golf club in his, or her, life, this presents an opportunity to take back a prize to show the real golfing friends at home. Judgment plays the principal part in covering this course with the smallest number of strokes, but everyone has a real chance to be a winner. The play is conducted on real grass costing $1 per blade—a privilege permitted through the courtesy of Messrs. White, of the Marlborough-Blenheim.

The competition is open to all ladies and gentlemen wearing the official badge. The only essential preliminary is for the contestant to register with the attendant, who will furnish each player with a special scorecard, balls and clubs. Attested scores are to be handed in on completion of play. The play opens on Monday at 2 p. m. and closes Thursday afternoon at 6 p. m.

Cardenas, a thriving city on the north coast in Matanzas Province, Cuba, expects work on its trolley to begin soon. The sale of the concession was effected recently. The cars will accommodate thirty-two passengers, and will run by storage batteries. There will be five branches traversing various parts of the city.

YESTERDAY'S SESSION OF THE TRANSPORTATION & TRAFFIC ASSOCIATION

The first session of the Transportation & Traffic Association was held yesterday afternoon at the Greek Temple. Vice-President Brush called the meeting to order at 2:15. The first order of business was the presentation of the annual address of President Hegarty. This is published elsewhere in this issue.

Vice-President Brush then referred to the fact that on the resignation of Mr. Hegarty the executive committee of the association had appointed the first vice-president of the association acting president to serve out the time. An address from him was unnecessary and superfluous, but he would simply say that on March 1, 1914, he had followed the wishes of the executive committee, and it had been a pleasure for him to carry out so far as he could the work planned by Mr. Hegarty. He said it was extremely unfortunate for the association that Mr. Hegarty had found it necessary to resign and equally unfortunate that he was not able to be present at the convention.

Secretary Burritt then read the report of the executive committee which consisted of minutes of the meetings of the executive committee. The report was approved.

Secretary Burritt then presented the report of the secretary-treasurer. This was also approved.

Vice-President Brush then appointed the committee on resolutions consisting of Charles F. Hewitt, C. Loomis Allen and C. B. Buchanan.

Vice-President Nicholl then took the chair and appointed the following committee on nominations: J. N. Shannahan, H. C. Donecker and J. V. Sullivan.

Report of Committee on Rules.

L. H. Palmer then presented the report of the committee on rules and suggested that the changes recommended by the committee be considered rule by rule. He then referred to rule No. 55 in the City code which read "Motormen or conductors must not under any circumstances give any information whatever concerning any accident, delay, blockade, mishap to any person except to a properly authorized representative of the company." The committee recommended the following substitute: "Motormen or conductors may when necessary, however, advise passengers as to the general cause and probable duration of a blockade."

The committee strongly urged that this change should be made. The motion was seconded and carried.

Mr. Palmer then passed to the interurban code. Consideration of this code began with a general discussion as to how far it was desirable to change the diction of the old rules at the present time. This discussion was carried on by Messrs. Palmer, Henry, Shannahan, Bolen, Nicholl, Ching, Van Zandt, Choate, Donecker, Storrs and Allen. It was decided finally to consider each of the changes recommended by the committee as a separate matter. This procedure resulted in the approval of practically all of the revisions suggested by the committee, the exceptions being as follows: The definitions referring to signals were retained in the code. The suggestion that markers should be carried at the top of the rear end of the train and that classification signals should be carried at the middle of the front end of the train was rejected, the old arrangement of markers and classification signals being retained. A change in present rule 159 permitting a train to proceed on its time-table rights from an initial station when unable to reach dispatcher and a suggested new rule regarding the display of signals by trains which are annulled were also rejected. The suggested change for rule 185 was approved with an amendment as made by H A. Nicholl providing for protection at all times for trains which run by and back into double-end sidings. A suggested rule also failed of approval in which the responsibility of conductors and motormen was specifically defined, it being held that both members of the train crew should be held at all times responsible for the safe operation of the train. Minor amendments were made in some cases.

At the conclusion of the presentation of the revised rules by Chairman Palmer of the rules committee, Secretary Burritt read resolutions to the effect that both codes of rules as approved by the meeting should be adopted as the standard of the association. In the discussion of these resolutions J. K. Choate spoke on the desirability of getting joint action on operating rules with the American Railway Association and protested against the adoption of the resolutions for that reason, although he appreciated the high character of the work that had been done by the committee on rules. W. H. Collins, Edward Dana and J. W. Brown then spoke briefly in favor of the adoption of the rules as standard without further discussion, Mr. Dana suggesting that joint action could be easily effected by the ensuing committee. When put to vote the resolutions as read were carried.

N. W. Bolen then moved a vote of thanks to the committee on rules for its admirable work, and in particular to Chairman L. H. Palmer for his clear presentation of the work of the committee. This motion was carried by a rising vote and the association adjourned to meet at 9 a. m. Tuesday, certain matters which were to have been brought up by the committee on rules being postponed until that time.

MONDAY AFTERNOON SESSION ENGINEERING ASSOCIATION

The first session of the Engineering Association was held on Monday afternoon. President Hanna called the meeting to order at 2:15 p. m. The first order of business was the presidential address as printed elsewhere in this issue. Secretary Burritt then presented the annual report of the executive committee, consisting of the minutes of the executive committee meetings held Nov. 20, 1913, and Oct. 12, 1914. After the acceptance of this report that of the secretary-treasurer was read and also formally accepted. President Hanna then appointed as a nominating committee Martin Schreiber, chairman; H. H. Adams, Paul Winsor, A. S. Richey and C. S. Kimball; and as a committee on resolutions, F. Kingsley and C. R. Harte.

In the absence of Mr. Litchfield, chairman, the report of the committee on revision of constitution and by-laws was presented by H. H. Adams. Upon inquiry raised by G. W. Palmer, Jr., the chair ruled that the constitution could not be amended at the present meeting as the chair did not think that thirty days had elapsed since notices had been sent to the members, in accordance with the old constitution. However, the by-laws could be approved at this time while the constitution could be approved informally and held over until the next meeting for formal approval. Mr. Palmer then moved that the proposed amendment to the by-laws be approved by those present. The motion was seconded and carried unanimously. On motion of J. G. Smith the constitution was approved informally.

The next order of business was the report of the general standards committee. The report itself had not been distributed but the chairman, Mr. Adams, pointed out that the committee's action on a given subject would be found in the reports of the several committees on the respective subjects. President Hanna then explained that the several reports of the different committees would be handled in this way: First the chairman would take the abstract of his report in general; then each item would be considered separately and with each would be read the action of the standards committee on that particular item.

G. W. Palmer, Jr., chairman, then presented the report of the committee on power distribution.

On motion the recommendation of the committee for a 20 per cent and 30 per cent Para rubber compound specification for rubber-insulated wire and cable was approved.

The specifications for No. 00, No. 000 and No. 0000 round and grooved high-conductivity trolley wire to supersede the specification for No. 00 hard-drawn copper trolley wire and recommendations of the committee regarding reinforced concrete poles and sundry line materials were also approved.

On motion the recommendation of the committee that conditions did not warrant a continuation of the study of influence of large short-circuit currents on multiphase cables and the dynamic force exerted between conductors during the time the short-circuit exists was approved. The meeting also adopted the recommendations of the committee on specifications for high-voltage, three-conductor, paper-insulated, lead-covered cable, and for galvanizing and sherardizing of iron and steel.

Following this the meeting approved the committee's report on copper wire tables, on stranding, on wire and cable terminology and sections 51, 54 and 61 for 600 volts d. c. overhead trolley construction as also approved by the committee on standards. The recommendations on the revision of sections 81 and 82 were referred back to the committee as the committee on standards had recommended that section 82 be so referred and the approval of section 81 alone would have left the wording of the two sections inconsistent.

The report as a whole was then adopted and a unanimous vote of thanks was tendered the committee for its arduous and successful efforts.

The general report of the committee on standards, abstracted elsewhere, was adopted after presentation by Chairman H. H. Adams.

The report of the committee on electrolysis was presented by the chairman, Professor A S. Richey, and adopted. This report is abstracted elsewhere in this issue also.

DATA SHEET ON MAIL SERVICE

F. W. Doolittle, director bureau of fare research, American Electric Railway Association, has just issued a data sheet to member companies relating to compensation for carrying United States mails. This information is being requested for the committee which has been investigating this subject under the chairmanship of M. C. Brush.

In the report of the joint congressional committee on postage on second-class mail matter and the compensation for the transportation of mail, of which Hon. Jonathan Bourne, Jr., is chairman, there were certain criticisms in regard to the lack of statistics of the cost of carrying steam railroad mail, supplied to the committee by both the Post-office Department and the steam railroads. The electric railway companies do not wish to be under a similar criticism when the question of the cost of transporting mail on electric cars comes to be considered. For this reason the committee wants to have full information on the subject from all the electric roads.

The information particularly desired by Senator Bourne is as follows:

I. Mileage made by railroad post-office cars during year ending June 30, 1914. (a) over postal route; (b) between postal routes and carhouses, not carrying mail; (c) total mileage; (d) hours layover at post-office.

II. Mileage made by freight[1] cars, during year ending June 30, 1914; (a) total mileage whether carrying mail or not; (b) mileage made carrying mail.

III. Mileage made by passenger cars during year ending June 30, 1914; (a) total mileage, whether carrying mail or not; (b) mileage made carrying mail.

IV. All other revenue[2] car mileage during year ending June 30, 1914; (a) total mileage whether carrying mail or not; (b) mileage made carrying mail.

V. Total revenue car mileage during year ending June 30, 1914; (a) total mileage whether carrying mail or not; (b) mileage made carrying mail.

Of the total mileage shown under V (a) how much do you estimate to have been made without revenue load, going to and from carhouses, etc.?

VI. Mileage made by revenue trains (a train to be taken as one or more cars); (a) total mileage whether carrying mail or not; (b) mileage made carrying mail.

The report of the second assistant postmaster general for the year ending June 30, 1913, shows (page 19) the rate of annual payments for electric and cable car service as of June 30, 1913, at various rates. Senator Bourne is also particularly anxious to have from each company a statement of the services rendered and the payments received under each of the various rates: (1) at 3 cents per mile; (2) at 4 cents per mile; (3) under special provision (4) at schedule rates other than 3 cents or 4 cents per mile; (5) at apartment and independent car regular rates; (6) at apartment and independent car maximum rates; (7) at special agreement rates less than regular rates.

Senator Bourne has also especially requested a statement showing the routes, with termini, the service over which is paid for at railroad rates, together with the amount of such payments.

In addition to these questions the committee asks a number of its own in the data sheet for use in presenting its case before the congressional committee.

[1] Express, baggage, mail, freight, etc.;
[2] Combination—express and passenger, mail and passenger, etc.;
IIb, IIIb, IVb, Vb, VIb—All mileage made carrying mail whether full car or not, and whether car had other revenue load or not should be shown.

EXPEDITING CLAIMS

The following is a copy of a letter written by a man in Arkansas to the general freight agent of a Western road as published in a lumber journal:

"In response to my application for indemnity for damage while in transit to one folding bed, I received some time since a postal from you, giving me the interesting information that my claim is number 100909, and suggesting that, if necessary to communicate with you further, I refer to this number.

"I was very glad to get this postal. It is a nice postal and, if not patented, I think I will have some printed myself for the benefit of my creditors. This thing of responding to a dun by giving a reference number in lieu of cash never struck me before. It ought to prove a new factor and a valuable object lesson in the economics of living expenses.

"However, as I am not especially desirous of practicing the theory upon myself, I would be greatly pleased to hear something a little more definite regarding claim 100909.

"If it had been an illegitimate pig metamorphosed by accident and sudden death into a pedigreed Poland China Porker, or a Ban-tailed Mule descended, on the principle of '*de mortuis nil nisi bonum*' from the dear departed Dexter or the late lamented Longfellow, this matter would, doubtless, have met with prompt adjustment, but, being only a bed, just a plain wooden bed, barring the fragments, I fear the claim I am so courteously invited to refer to again, if necessary, has been filed away with the other archives of a like nature, where moth and rust may corrupt, but thieves certainly do not break through and steal, for even a burglar's time is too valuable to be thus wasted.

"If, however, No. 100909 will prove an 'Open Sesame' to the dusty doors of the rusty recess wherein this claim is deposited, I adjure you let the light of day once more fall upon it before mold and moth destroy, and let me know whether it is collectible in the near future, or whether I shall bequeath it, hoary with venerable antiquity, as a relic of the long past nineteenth century to my posterity and for myself trust to meeting it again only on the shore beyond."

COMMITTEE ON SCHEDULES AND TIME-TABLES

The committee on schedules and time-tables of the Transportation & Traffic Association reported yesterday on limited express service, checking car mileage, detention reports and set-backs. As to the first subject it is believed that the best method of improving the running time in city operation is to have stops established at standard spacings with proper signs; the "skip-stop" or odd and even method is considered confusing and annoying to the public. The committee believed that the most feasible method of checking car mileage, short trips and lost trips is by providing space for that purpose on the conductor's day or register card. It opposed any standard form of detention report on the ground of differences in local conditions. It stated that the operation of set-backs should be discouraged and restricted, if possible, to rush-hour conditions, a set-back being defined as a car which left the terminal on the schedule time of a car which had exceeded its running time and layover; then when the set-back car met the delayed car it changed crews, thus placing the belated crew on its schedule. The reason given for this decision was that the plan necessitates holding a crew on the bench under pay, subject to call; it offers opportunity for abuse by trainmen in the way of performing less actual service than is required of them; and it encourages a condition that will eventually have a tendency to slow down the schedule speed and increase platform cost.

Of the four appendices to this report, "A" dealt with limited express service; "B," with train dispatching in city operation as by telephone at Rochester (described in the ELECTRIC RAILWAY JOURNAL for April 18, 1914); "C," with set-backs; and "D," with fundamental factors covering the construction of time-tables, such as distribution and habits of population, physical characteristics of the lines, distribution of hours of platform work, and method of checking changes in travel.

REPORT OF COMMITTEE ON ELECTROLYSIS

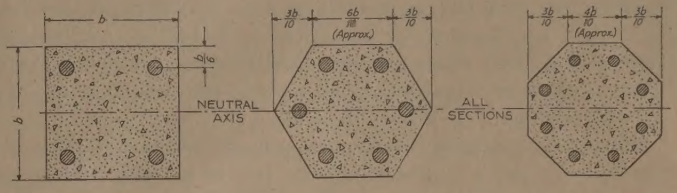
The committee on electrolysis of the Engineering Association reported yesterday on the organization of the joint national committee on electrolysis. The organization of this committee was described in the issues of the ELECTRIC RAILWAY JOURNAL for May 24, 1913, page 934, and April 4, 1914, page 763. The association committee has done some work during the present year along the following lines: (1) a simple presentation on Kelvin's law in easily workable form for the determination of the economic voltage drop in d.c. feeders; (2) the development of a formula and graphic chart showing the economic replacement resistance of rail bonds; (3) a consideration of the proper values to be used in discussing the energy saving to be effected by the addition of feeder; (4) a discussion of the limitations of potential and return circuit, and (5) a bibliography on the subject of electrolysis. This material was not published in the report as the committee wishes to continue the study, but the results are accessible at any time to member companies.

REPORT OF COMMITTEE ON POWER DISTRIBUTION

The report of the committee on power distribution of the Engineering Association, presented on Monday afternoon, contained recommendations as follows: that specifications for rubber-insulated wire and cable for power distribution purposes, as submitted, be adopted as standard; that a new set of specifications for round and grooved trolley wire, as submitted, be substituted for the present standard specification for No. 00 hard-drawn copper trolley wire; that a revision of the specification for galvanizing on iron and steel, as submitted, be adopted; that certain specified changes be made in the recommended specification for 600-volt d.c. overhead trolley construction, and that certain minor changes be made in tables, etc., in the Engineering Manual. The conclusions reached on other matters that were considered by the committee were as follows: that it be given further time to investigate the subject of concrete poles; that further time be allowed for investigation preliminary to the preparation of specifications for sundry line materials, and that further consideration of short-circuit currents is not warranted in view of a theoretical and practical study which has been made by I. W. Gross of the Interborough Rapid Transit Company.

The bulk of the committee's report is taken up with appendixes containing the specifications already referred to. A complete set of wire tables, revised to conform with the recommendations of the American Institute of Electrical Engineers, is included.

One appendix is entitled "Reinforced Concrete Poles of Hexagonal and Octagonal Sections." This article continues the study of the properties of concrete poles as reported in the 1913 Proceedings of the Engineering Association, page 82. The useful data finally arrived at are given below:



COMMITTEE ON POWER DISTRIBUTION—TYPICAL CONCRETE POLE SECTIONS

SQUARE POLE:

$$\text{Deflection } x = \frac{30\ Pl^3}{E_s\ b^4}$$

where x = deflection in inches, 18 in. from top of pole. This is the theoretical value which should be increased 25 per cent.

P = horizontal pull 18 in. from top of pole.

l = length of pole from point of application of P to ground line (6 ft. from base end) in inches.

E_s = modulus of elasticity of steel used.

b = side of square pole or distance between parallel faces in hexagonal or octagonal poles.

also

$$\text{Area} = b^2.$$

$$\text{Safe load, } P_1 = \frac{1750\ d^2 b}{L\ (\text{ft.})} \quad \text{(Approximate)}$$

where d = diameter of steel rods in inches.

$L = l/12$.

The corresponding values for the other sections are these:

Hexagonal Column	Octagonal Column
$x = \frac{40\ Pl^3}{E_s\ b^4}$	$x = \frac{47\ Pl^3}{E_s\ b^4}$
$\text{Area} = \frac{9b^2}{10}$ (Approximate)	$\text{Area} = \frac{8b^2}{10}$ (Approximate)
$P_2 = \frac{9P_1}{10} = \frac{1575d^2b}{L}$ (Approximate)	$P_3 = \frac{8P_1}{10} = \frac{1400d^2b}{L}$ (Approximate)

where P_2 and P_3 are the respective safe loads.

Per cent of steel equals 4 in all sections, approximately.

COMMITTEE ON STANDARDS

The report of the committee on standards of the Engineering Association presented in tabular form the recommendations of the committee on standards with regard to the standards and recommended practices submitted by the various standing committees of the Engineering Association. In accordance with the custom established last year, detailed statements of the findings of the standards committee accompanied the respective reports of the several standing committees and these are printed in the digests of the reports.

REPORT OF COMMITTEE ON CHANGES IN CONSTITUTION AND BY-LAWS

The report of the committee on changes in constitution and by-laws, presented yesterday to the Engineering Association, contained in general such changes as were necessary to eliminate contradictory points and to revise the articles according to the conditions existing under the present organization of the American Association. The chief sections redrafted dealt with the membership, the nomination of officers and the offices of secretary and treasurer.

The old designation of "active" and "associate" members has been dropped and the membership of the Engineering Association is now to consist of "company members" and individual members of the American Electric Railway Association who have elected to ally themselves with the Engineering Association. The individual members will not be entitled to vote and may hold office only if in the employ of company members. They are granted the following rights: Attendance at meetings and participation in discussions; membership on committees; receipt of association proceedings and other general publications, including *Aera* and advance convention papers, and the wearing of the official emblem.

Provision is made in the new constitution for a nominating committee of five members, two to be past presidents and the other two not members of the executive committee, to be appointed by the president at the time of the formation of standing committees. This nominating committee is to secure the names and consents of nominees and forward the names to the secretary on or before July 1. The list of nominees is to be published in the August *Aera*. A written communication to the secretary, signed by twenty company members and accompanied by the nominee's acceptances also constitutes a nomination. The nominating committee is given power to fill any vacancy in the list of nominations prior to election.

The old constitution provided that the duties of secretary and treasurer should be performed by the same person, but under the new provisions this doubling up of duties is optional. Hence, in the section dealing with the duties of the secretary and treasurer these are divided to come under the proper head. Each of the two officers may be paid a sum fixed by the executive committee.

YESTERDAY'S SESSION OF THE CLAIMS ASSOCIATION

The first session of the Claims Association was held in Claims Hall on the pier and was well attended. The first order of business was the address of President Weh, which is published in abstract elsewhere in this issue. This was followed by the reports of special committees. Mr. Drown's committee reported on the claims index bureau. He followed the report of his committee with a written discussion which indicated that the member companies were not taking the interest they should in the bureau. As a result of this report a committee was appointed to set a time for a general discussion of the subject and to report to the executive committee of the parent association This committee included Messrs Tichenor, Drown and Walsh. Immediately following this session this committee held a meeting and arranged for an open discussion of the advisability of the executive committee parent body continuing to pay $500 a year for the service of the bureau. This open discussion of the value of the claims index bureau will be held Tuesday morning immediately after the joint session with the Engineering, Transportation & Traffic associations.

Continuing the program, E. P. Walsh, attorney United Railways, St. Louis, read a paper entitled "How Investigations Should Be Conducted from a Legal Point of View, Having in Mind Defense as Well as Adjustment." This paper was followed by written discussions by L. S. Hoffman, general solicitor Public Service Railway, and Wallace Muir, claim agent Kentucky Traction Terminal Company.

The session closed about 5 p. m.

COMMITTEE ON RULES

The committee on rules of the Transportation & Traffic Association stated in its report that the standard city and interurban codes of rules have come into general use, no fundamental objections to them apparently existing. The city code was said to have reached the stage where further radical revision was unnecessary, and a final revision for the interurban code was submitted as an appendix, thus placing both codes in practically permanent form. The committee recommended that, where all operation was of one-car trains, no markers should be used by day, but, where trains of more than one car were operated, all trains should carry green-flag markers. Classification signals located at the middle of the first car on a train were also recommended, as well as markers on the top of the rear car. The committee further recommended the following addition to the much-discussed rule 55, of the city code, on the subject of trainmen giving out information in case of accidents or delays: "Conductors may, when necessary, however, advise passengers as to the general cause and probable duration of a blockade." This addition was believed to be in accordance with the interests of the traveling public.

GERMAN MANUFACTURERS IN ENGLAND

The present war between two countries which have conducted commercial affairs with each other so long as Germany and England has brought about situations which seem peculiar as well as problems which are difficult to solve. Some of those are discussed at length in our English technical contemporaries. Thus an extended discussion appears in several successive issues of the London *Electrical Review* in regard to the proper status of certain electrical manufacturing concerns of whose capital stock a considerable part is said to be owned in Germany. One of the most prominent of these is Siemens Brothers & Company. A number of closely printed pages are devoted in the paper in question to discussions as to whether the British electrical trade ought to boycott such manufacturers because of their stockholders or should continue to patronize them because of the British employees who would be thrown out of employment if a boycott was instituted. The majority were in favor of no boycott. The discussion on this point, however, elicited the statement that some of the concerns engaged in the electrical business in Great Britain and owned almost entirely in Germany rejoice in names of a purely British character. This is additional corroboration to the truth of Shakespeare's remark, "What's in a name?"

Other "war news" in the same periodical include correspondence between a British firm and a German collection agency in which the former declines to pay its account unless required to do so by the British courts, statements in regard to orders for equipment originally placed in Germany but canceled and now being supplied by home concerns, contributions by different companies to the Red Cross funds, and reports in regard to the number of employees from different tramways and other electrical companies who have joined the colors. Several corps of engineers have been raised, and service in them has been very popular among the electrical engineers.

The Galena-Signal Oil Company extends a most cordial welcome to all convention delegates and their wives and children to its reception tearoom at booth 24. Its tea, like good wine, needs no bush.

ADDRESS OF PRESIDENT HANNA OF THE ENGINEERING ASSOCIATION

In the opening part of his address yesterday President Hanna referred to the proposed revision of the association by-laws and constitution so as to make them conform more with those of the American Association and of the other affiliated associations. The most important change, he said, was in the provision for a new method of nominating officers whereby the members will have an opportunity to know in advance who are to be the nominees and suggest others if they see fit.

President Hanna then referred in detail to the work of the various committees of the association as shown by their reports and mentioned some of the principal conclusions reached. Among other points he referred to the fact that during the past year the Lorain Steel Company had cut rolls for the standard 7-in. and 9-in. grooved girder rails recommended by the way committee last year, and these rails had now been adopted by railway companies in Montreal, Boston and Columbus. He said that during the coming year it was the plan to reduce the number of subjects assigned to each committee, partly to relieve the task imposed upon committee men but also on account of limited time at the disposal of the association to consider these reports at the annual convention.

The address then mentioned the Engineering Manual, a result of the standard committee's activity, which had been distributed to all members during the past year. A yearly revision of this Manual will keep it up to date. Up to the present time 1097 copies have been distributed to members and eighty-one have been sold. Mr. Hanna urged all members to assist in the distribution and sale of this Manual, not only on account of the financial help it would be to the association but also so that the work of the association in establishing standards would be utilized and appreciated to its fullest extent. It had been decided to extend the free distribution of this Manual to all individual members allied with the Engineering Association who joined prior to Jan. 1, 1915.

The address then stated that during the past year the Engineering Association had kept within its appropriation of $4,000 and had also been able to clear up the deficit for the past two of three years.

The address then mentioned the co-operative work of the association with other associations, particularly the arrangement with the Central Electric Railway Association providing for the prompt reference to the standards committee of any standards adopted by that association, and of the joint commitee on overhead crossings.

Mr. Hanna then urged that the membership in the association be increased and mentioned the many direct benefits which accrue from membership including the receipt of *Aera*. He concluded by expressing his thanks for the assistance which he had received from the executive committee and each chairman of the different committees and also from the secretary-treasurer and his able staff.

EMBRYO SCHEDULE MAKERS

An almost continuous cause of complaint among trainmen is the way in which schedules are arranged. Unless a man has actually attempted to make out a time-table he little realizes the difficulties of arranging the runs to meet the requirements of travel and at the same time allow the men to complete their day's work within reasonable hours. For this reason the United Railroads, San Francisco, Cal., has offered, through President J. W. Lilienthal, a prize of $25 to the platform man submitting the best time-table for the company's Haight Street line. The announcement was made in the *United Railroads' Magazine* for September, 1914, and a table of headways from the ferry was furnished for the benefit of the men. The competition closes Nov. 1.

ADDRESS OF PRESIDENT WEH OF THE CLAIMS ASSOCIATION

In his address at the opening of the Claims Association yesterday afternoon, President Weh called attention to the fact that this was the tenth annual convention of the Association and to the progress which has been made by the claims department of the different companies during this period. For the Claims Association to grow, he said, it must have the hearty real co-operation of the membership, and this should not be limited to what is done at the conventions. He then referred to the report of the joint committee of the Claims Association and the Accountants' Association on claim accounting as a most important matter and one which could well have been taken up earlier.

President Weh then spoke of the improvements in electrical appliances and equipment which had taken place during the past fifteen years and said that they had been no more startling than those made in the conduct of electric railway claim departments during the same time. The companies now realized that they must improve their relations with the public. The effort is being made to do so, but the mistakes of the past are not to be undone in a day. Public sentiment is so strongly for better things that it is easily led from regulation to oppression, and this attitude is reflected in large verdicts in damage suits, in common law defence and changes in jury systems.

The claim department on any public service company comes in direct contact with many individuals, and the more justly it treats with them the more justly will it be treated. President Weh recommended that the companies deal fairly with those who have legitimate claims, but to use an iron hand for crooks. The most essential defence against the latter is to have all the facts. No case is so trivial but the company can use all the information available.

President Weh then referred to the service of the Hooper-Holmes Index Bureau. The arrangement with this bureau was made only after a number of years of discussion and after the value of such a service to the association had been fully determined upon. Now it was found that only a small percentage of the member companies availed themselves of service furnished by this bureau and that this patronage was made up almost entirely of the larger companies. He believed that there was no way in which it was possible for the member companies to secure a service equal to or better than that furnished by the bureau, and if this service was discontinued the member companies would be left without any clearing house of this nature except by paying the individual subscription fee direct, which many of the smaller companies could not afford to do.

Mr. Weh then referred to accident prevention, which had become a very important phase of the work of the claim agents. Great progress had already been made in this direction, but he believed a greater accomplishment was possible and really in sight. He mentioned the appointment at the last convention of a board of accident prevention, made up of the past presidents and present officers of the Claims Association with representatives from the Transportation & Traffic Association and the Engineering Association. This committee had prepared a report which would be presented at this convention.

In closing, Mr. Weh extended his wish to all for a successful and pleasant week and thanked the members of the executive committee of the association for their loyalty and kindly feeling during his year of office.

In order to secure information regarding the relative business done by steam and electric roads during the State Fair recently the Ohio Public Utilities Commission had the arrivals on each counted during the forenoons of two days. On one day the electric lines carried 27 per cent and the other 34 per cent of the passengers.

ADDRESS OF PRESIDENT HEGARTY, OF THE TRANSPORTATION AND TRAFFIC ASSOCIATION

Secretary Burritt read yesterday the address prepared and sent to the Transportation & Traffic Association by D. A. Hegarty, who was elected president of the association last year but resigned March 1. After expressing his regret that he was not able to continue the office of president, Mr. Hegarty briefly reviewed the progress made during the short period when he was in office. He described the mapping out of the year's committee work by the executive committee in December, 1913, and also the joint committee work undertaken between the various associations. In the latter connection, Mr. Hegarty stated that the amicable manner in which joint committees had worked in harmony showed the cordial feelings that existed between the different associations and made for increased efficiency and service.

Mr. Hegarty suggested that a joint committee be formed between the Transportation & Traffic Association and the Claims Association to take up the subject of platform operating doors and gates, as to which is the most efficient and economical, manually, mechanically, electrically or air-operated doors. This committee should also determine what would be the best way for the motormen or conductors or both to operate the doors or gates. In view of the importance of the "safety first" movement and the prevention of boarding and alighting accidents, this study was, in Mr. Hegarty's opinion, a most important one for the two associations named.

Mr. Hegarty called attention to the discussion of the flagging rule that has been commented on several times in the Electric Railway Journal, and stated that this work was eliminated at the meeting of the association in 1911, but that a thorough discussion should be had so as to reach a definite conclusion. As regards the committee on fares and transfers, he felt that in spite of the highly valuable reports previously received sufficient time had never been given for a thorough discussion of this subject, especially in connection with transfers and their checking.

In closing his address, Mr. Hegarty emphasized the importance of perfecting the safest and most economical method of handling traffic and developing more cordial relations with the public. He believes that conscientiousness is necessary on the part of the employees who deal with the public, from the highest official down to the last graded employee, for it produces a public conscience that results in a spirit of fairness and confidence.

BE AS "AISY" AS YOU CAN

In connection with the work on one of the chapters for the souvenir edition of this paper it became necessary to solicit some material by mail. The following reply to one of the letters is too good to be lost to view in the letter files:

"Your letter of Aug. 21 was received. It has been impossible for me to reply sooner, by reason of the fact that time was not at my disposal. When a man is acting as assistant to the general manager of this company, and editing the * * * * writing editorials, culling out bunc and rounding pearls of thought into readable form, he don't git no time for flights into other journalistic realms. As a writer, I hate to put a story together for the pleasure of the thing, but as a tramway employee, I should like to oblige you. You probably know how you'd feel, if I should ask you for a story on power economy, for instance.

"Please let me know when you have to get this story. I am going down on my ranch for the next two weeks, where I can wear old clothes, turn my debonair map up to the sun and commune with Nature and the family dog. When I return it will be necessary to throw 'er over onto the loop and get out the October issue. People don't realize how much work there is on a forty-page street car blatter.

"You can see what I'm up against, therefore, be as aisy as you can."

MADAME AULD

The entertainment committee was exceptionally fortunate in securing the services of Madame Auld, the prima donna soprano from Milan, as soloist for the reception last evening. The audience received her opening selection, the aria from the mad scene of "Lucia Di Lammermoor," with great favor. Her encore "Un Bel 'di" met with equal enthusiasm. Madame Auld has recently returned from Europe where she is well known, having sung in Milan, Rome, Budapest, Paris, London and Berlin. Von Strauss, director of Royal Opera of Berlin, has said that she had possibly the most beautiful voice he had ever heard, and Knehbiel, critic of the New York *Tribune*, has praised the rich, natural qualities and warmth of her tones.

RAILWAY MEN AN EXACTING LOT

According to the Philadelphia *Public Ledger* the railway men in attendance at the convention are "an exacting lot." At least that is what the correspondent of that paper said in his Atlantic City column in the issue of Oct. 12. After referring to the prevailing fall fashions as seen on the Boardwalk the writer said:

"In the throng were many glad-to-be-free delegates to the annual convention here this week of the American Electric Railway Association, snappy-looking men of affairs upon whose broad shoulders and astute minds depends very largely the maintenance of rapid transit in cities both large and small throughout the country. Hotel exchanges resounded with their merry greetings, and North met South and East the West in the midst of the Wooden Way throng. Philadelphia also contributed battalions to swell the procession and give the rolling chair barons a better day's business than has been their lot for several weeks. Once more there is a bath famine in the big Boardwalk hotels, for the holiday-making railway men are an exacting lot."

In a separate story almost a column long the general activities of the association in connection with the convention were reviewed.

FOR CLAIM AGENTS

A reporter on a Kansas City paper was among those on a relief train that was being rushed to the scene of a railway wreck in Missouri. About the first victim the Kansas City reporter saw was a man sitting in the road with his back to a fence. He had a black eye, his face was somewhat scratched and his clothes were badly torn—but he was entirely calm.

The reporter jumped to the side of the man against the fence.

"How many hurt?" he asked of the prostrate one.

"Haven't heard of anybody being hurt," said the battered person.

"What was the cause of the wreck?"

"Wreck? Haven't heard of any wreck."

"You haven't heard of any wreck? Who are you, anyhow?"

"Well, young man, I don't know that that's any of your business, but I am the claim agent of this road."—*Harper's Magazine.*

The Manila Electric Railroad & Light Company, Manila, P. I., has opened a lunch room for its employees in its carhouse on Calle San Marcelino.

NEW ARRANGEMENT OF MEETING HALLS

Through the efforts of the exhibit committee, the comfort of the delegates at the technical sessions should be greatly enhanced this year in connection with the arrangement of meeting halls. Two new halls have been built, and other changes have been made to provide better accomodations for the various sessions. One of the improvements, which will be most welcomed by the delegates will be in connection with the meeting rooms for the affiliated associations. All of the associations will now have comfortable, well-lighted rooms at the end of the pier.

Two new rooms have been built during the past summer for this purpose. One is designed for the Accountants' Association. This is at the end of the Annex near the Greek Temple and on the south side of the pier. Here a special hall has been partitioned off with chairs to accommodate about eighty delegates. It is festooned with flags and provided with window curtains and floor covering. There is no long flight of steps to mount as last year.

The American Electric Railway Claims Association has been accommodated with a similar hall also adjoining the Greek Temple and on the north side of the pier. This hall is large enough to accomodate the number of delegates which it is expected will attend the meeting of the Claims Association.

The American Association and the Transportation & Traffic Association will meet as usual in the Greek Temple. The Transportation & Traffic Association will meet in the morning and the American Association in the afternoon. The decorations here typify the international character of the association.

The hall to be used by the Engineering Association is the same as used last year, but Mr. McConnaughy has had a floor covering laid over the passageway for the public at the side of the hall so that there should be no disturbance from the noise from passers-by, even if the windows are open. All of the halls are well lighted.

CHANGES IN PIER ARRANGEMENTS

A number of changes in the arrangement of the convention pier and the exhibits will be noticed by the visitors to the convention this year. These have been worked out by H. G. McConnaughy, director of exhibits, and add very much to the comfort of the delegates and others in attendance, as well as to the attractive appearance of the exhibits. They include improved facilities for technical sessions, exhibits and entertainments.

The first change which the visitor to the pier will see this year is at the entrance. A neat pair of posts each of which is surmounted by a vase with ferns, flanks the main entrance. The registration desks are directly inside the front door, the desk for the railway delegates being at the right and that for the manufacturers at the left. Here the delegates register, but this preliminary has been greatly simplified this year by the system of advance registration which both the American Association and the Manufacturers' Association have encouraged. Those who took the precaution to send in their advance registration cards need lose little time in securing the proper badge. In the case of a member of the Manufacturers' Association these badges are obtained after he passes through the gateway and turns to the left.

The foyer of the pier this year is entirely different from that of last year. The alabaster columns surmounted by lights in globes, which were a feature of the entrance of the 1913 convention, have disappeared. In their place is a series of very graceful standing electroliers of gilt surmounted by ten or a dozen single lights with colored shades. These electroliers also line the grand aisle leading to the end of the hall and are supplemented by colored lights in the hedges.

The foyer bore three separate guises yesterday. The first was apparent in the morning during the concert, when the space was opened and occupied by those who were listening to the music. Between 1:30 and 2:30 a rapid transformation took place. The bare floor was covered as by magic with grass. Tables, surmounted by individual awnings, appeared in place, and tea was served during the thé dansant. In the evening another change was made, and the foyer became a ball room with gold decorative effect during the annual reception.

Passing now to other parts of the hall, another striking improvement which the visitor saw yesterday when he entered the hall was the change in Machinery Hall. Formerly this was separated from the main hall by a rough board partition, and no attempt was made at decoration. This year the partition has given place to a cedar and box hedge. The floor of Machinery Hall has been laid throughout with Crex, and windows have been draped with curtains. In addition, the different exhibits are separated by graceful pedestals and, in the case of most of the exhibits, by flowers and shrubs in pots. Machinery Hall seems now as much a part of the general decorative effect of the exhibit as any other. Finally a reception room has been located at the west end of Machinery Hall to afford a place for rest and conferences during convention week.

The improvements made in the pier this year are not confined to the first hall. An important change has been made in the rear of the annex by installing glass frames so that all of the annex is under cover. This was done as a protection against possible rain, and, while the indications are toward a pleasant week, this is an improvement which will be greatly appreciated. Changes have also been made in the meeting halls, as described in another column.

DEATH OF MR. WHITTLESEY

Curtis E. Whittlesey, for many years treasurer and secretary of the McGraw Publishing Company, Inc., died at his home in Madison, N. J., on Friday, Oct. 9, 1914, in his seventy-second year. Though he had been ill of pneumonia for several days, the end came suddenly.

Mr. Whittlesey was born near Rochester in 1842. As a young man he entered business in Corfu, N. Y., where his industry and capacity brought him early success. In 1890 he joined James H. McGraw as a member of the firm which was the publisher at that time of the Street Railway Journal, and which, as the present McGraw Publishing Company, Inc., became also the publisher of the *Electrical World*, *Engineering Record* and *Metallurgical and Chemical Engineering*.

During the twenty-four years of association with this publishing enterprise Mr. Whittlesey had become widely known as a man of great experience in business affairs, and his wisdom and unerring judgment were constantly consulted not only in the affairs of the company, which he had done so much sucessfully to establish, but by many individuals who had come thoroughly to value his opinions on commercial and financial questions. Although his passing came with the ripeness of years, it is deeply lamented by a host of friends, many of them close business associates, who loved and honored him. It was impossible to have even the most cursory relationship with him without being impressed by his lovable qualities and sterling character.

Mr. Whittlesey was keenly interested in church work, and was for years an elder and the treasurer of the Presbyterian Church at Madison, N. J.

He leaves a widow and three daughters, Mrs. Carl A. Felt, wife of the Rev. Carl A. Felt, of the Pekin University, China; Mrs. James H. McGraw, wife of the president of the McGraw Publishing Company, Inc., and Mrs. Robert E. Harned, wife of the Rev. Robert E. Harned, librarian of the Drew Theological Seminary, Madison, N. J.

CIRCUMSTANTIAL ACCIDENTS

A singular feature of many accidents, when carefully analyzed, is the part played in such events by a chain of circumstances leading to the untoward result. On such occasions relationships between conditions and objects are brought out which would otherwise remain undetected for long periods. Thus, in a recent carhouse fire which, fortunately, was extinguished by the employees of the local company before it gained headway, the sequence of events was most illuminating. The trolley wheel of a car that was being run into the house with the trolley pole in the reversed position, left the wire and swung around sufficiently to clear the wooden guard on the overhead timbers, struck the beams and came in contact with an iron conduit carrying a lighting circuit. At the same time the trolley pole buckled, making simultaneous contact with the wire, and thereby grounding the latter. Current passed over the conduit to the ground at the rear of the building. In contact with the grounded pipe was a metal ash barrel. As a result the conduit was melted where it entered a junction box on the ceiling and a fire was started at that point; the ground wire at the rear of the building was melted off and the ash barrel was melted at points of contact with the pipe; and current also passed to the second floor, where connections of soil pipes at metal sinks were burned off and a fire started among some towels on an adjacent side wall. Quick work saved the company a heavy loss.

Obviously it is often very difficult to forestall the interrelation of circumstances in connection with the prevention of fires and accidents, but in all such work the efficiency of prevention is largely a matter of putting factors together which may cause trouble and mentally sizing up their possibilities for harm. In other words there is a sort of accident chemistry, with some elements which must be kept apart and others which are better kept together. Clearances, insulation, temperatures, speeds, momentum of masses, lost motion, unnecessary contacts and many other points need to be considered by the constructive imagination, trained by analysis of causes and effects to sense the opportunities for danger to enter the situation. Carelessness in some small particular so often sets in motion a whole train of evils that in carrying forward a broad campaign for safe operation no better work can be done by employees and officials directly responsible for handling rolling stock and plant than to forecast the results of all sorts of slips and errors and to take steps in time to restrict their effects to the harmless field. By paying heed to the man with the alarmist type of mind in such work a great many troubles can be prevented.

GENERAL RAILWAY SIGNAL COMPANY'S PAST PERFORMANCES

The General Railway Signal Company has made its record of installations the keynote of its exhibit. A number of views of signals on various railways are shown in large colored pictures that are remarkable for their artistic effect as well as for their accuracy of detail. The installations include that made at the Grand Central Terminal in New York City, where an interlocking plant of extraordinary magnitude is in service as are also automatic signals governing train movements on the electrically operated lines leading into the terminal. The installation on the San Francisco-Oakland Terminal Railways is also shown. This is unique in that it has automatic stops consisting of overhead trips which are operated directly by the semaphore arms, the trip being engaged when the semaphore is in horizontal or stop position and being lifted out of the way when the semaphore moves up into proceed position. A view is also shown of the automatic stop of the track-trip type that is installed on the Centre Street Loop and Williamsburg Bridge line of the New York Municipal Railway.

MODERN POWER HOUSE SPECIALTIES

At spaces 158 and 160 of the Harrison Safety Boiler Works water is pumped through a Cochrane metering heater, showing just how the water is broken up in the tray section, where it is heated by the exhaust steam, after the steam has been cleaned of oil by means of the Cochrane oil separator on the inlet to the heater, which is equipped with a compact and fool-proof cut-out and by-pass arrangement. Then it can be seen how the water passes over the V-notch built in the heater, and how the height of water flowing over this weir is transcribed into a graphic record of the amount at which the water is fed to the boilers, affording means for checking boiler efficiency, heat value of coals, the most desirable methods of firing, etc. These metering heaters are built in units up to 20,000-hp capacity.

The Cochrane precision meter, also shown in operation, measures water by automatically filling and emptying two chambers of known capacity. The distinctive feature of this meter is that it is necessary for one chamber to be absolutely empty and the other chamber to be completely filled before the inlet and discharge valves are operated. Other exhibits include the Cochrane multiport safety exhaust outlet valve, which is essentially a safety valve for low-pressure work; the Cochrane multiport flow valve, which is a modification of the Cochrane multiport relief valve, and is designed to act as a vacuum check valve between low-pressure cylinders of engines and low-pressure or mixed-flow turbines; and the Sorge-Cochrane Hot-process system, which is designed for preventing scale formation and corrosion by boiler feed water. The company's chemist is present to give demonstrations on various hard waters, showing the results obtained by treating the water cold, and then by treating it hot by this company's method.

A SUB-STATION ON THE PIER

The Railway & Industrial Engineering Company, Pittsburgh, Pa., has taken space 609 in the Annex, on the way to Engineering meeting room, for a display of Burke horn gap switching and protective apparatus for all voltages from 2,200 to 66,000 volts. In addition to the apparatus exhibited photographs and drawings picture various applications and installations designed to meet different requirements. In this booth can be seen the new Burke series horn gap lighting arrester with Koppat resistance in the ground circuit. A three-pole Burke horn gap switch mounted complete on a wood pole; also the Burke horn gap switch with the new flexible Butt contact, which makes the switch absolutely weatherproof and overcomes entirely the possibility of the switch freezing up. The company has oscillograph records which were taken during the opening of Burke horn gap switches under 4000 kw. and 5000 kw loads at 50,000 volts, also the standard 45,000 volt switch used to open these loads. It also has for inspection a 2200-volt and 6600-volt suspension type lighting arrester with resistance in the ground circuit, horn gap fuses, T. E. line clips, which make it possible to tap transformers and other high-voltage apparatus to live lines, and commutator slotting tools. Just outside the Annex near the Engineering meeting room is installed a complete steel outdoor transformer substation of a new design built to meet interurban requirements. The station is absolutely complete in every respect. The switching and protective equipment for the high-voltage side consists of a Burke horn gap switch and a combination lighting arrester, choke coil and fuse. A 2500-volt automatic weatherproof oil circuit breaker and suspension type lighting arresters protect the low-voltage side of the transformers, and a steel cabinet box houses the metering equipment. This type of substation is particularly adapted for tapping high-voltage transmission lines for small amounts of power. The new T. E. lattice steel pole is also shown here.

WESTINGHOUSE MACHINE COMPANY SHOWS TURBO-EXCITERS

The Westinghouse Machine Company is showing an A-50 kw, 125-volt d.c. unit, which is being widely used for exciter service. Three units built at present in sizes from 25 to 200 kw consist of a high-speed, single-wheel impulse type of turbine connected by means of a Westinghouse reduction gear to a standard inter-pole generator. By means of reversing chambers the steam passes through the blades two or more times, depending on the operating conditions. The reduction gear and pinion are of the split helical type mounted in ring-oiled bearings and inclosed in a horizontally split oil-tight case. These units are adapted for both condensing and non-condensing service for steam pressures of 100 lb. or more. By using a high speed turbine a low water rate is obtained over a wide range of load.

GENERAL ELECTRIC COMPANY FEATURES

The General Electric Company's display of railway motors this year features some notable improvements. These motors represent six classes of electric traction work; the GE-239 motor, rated 1200-2400 volts, 150 hp, on the Michigan & Chicago and Canadian Northern for heavy through service and tunnel electrification; GE-240 motor, rated 600-1200 volts, 80 hp, on the Willamette Valley Southern for high-speed interurban service; GE-242 motor, rated 65 hp at 600 volts and 55 hp at 500 volts, for the Chicago Surface Railways; GE-243 600-volt motor, for the Chicago Elevated Railways; GE-248 motor, rated 160 hp at 600 volts, for subway service on the New York Municipal Railways; GE-247 motor, rated 35 hp at 600 volts and 30 hp at 500 volts, for low, 24-in. wheel car, city service on the Pittsburgh Railways. The GE-247 motor is exhibited in operation, while the armatures of the remaining motors are removed to afford an opportunity for easy inspection of the interior construction.

The Sprague-General Electric type MK all-electric control equipment shown embodies new connections and is designed for four 30 hp motors. A chart shows the circuit connections established. Four K patform controllers are also displayed, which are types K-51, K-36, K-35 and K-201.

A combined straight and automatic air-brake equipment is mounted on a rack as on a car. The CP-27-B compressor with this equipment has a special glass cover and lamps in order to illuminate the interior and show the flow of oil. The recent, light-weight CP-25-C, 600-volt compressor is also included. A complete assortment of line material, including catenary, is attractively grouped on a large frame. Many of these devices are mounted as in actual service. A number of separate valves and devices entering into car equipment also form part of the company's exhibit.

Forged-steel treated gears and also cast-steel split and solid gears for both city and heavy interurban service are shown, as well as several grades of forged steel treated pinions. The new sheet steel gear cases have each of their upper and lower halves pressed out in a single integral piece. The steel supports for the top and bottom halves are fastened by welding.

An extensive exhibit of headlamps for various classes of electric railway service is shown. The line comprises type D-18, 4-amp, luminous arc lamp with semaphore lens for high-speed interurban service, dimming being effected by incandescent lamps; type D-12, 4-amp, luminous arc lamp with plain glass door and parabolic reflector for slow-speed interurban service, reversed polarity dimming; type D-11, 2-amp, portable luminous arc lamp with semaphore lens for city and suburban service; type J-7, incandescent headlamp with parabolic reflector for city and suburban service; type J-9, incandescent lamp with parabolic reflector for city service; and type J-15, incandescent lamp with semaphore lens and guard door for city service.

The display of railway lamps demonstrates how much more effective results have been obtained through the new systems of illumination in railway cars. Both the old style carbon lamps and the modern Mazda lamps that are now generally employed figure in the display. Improvements in the wiring arrangement as well as the selection of lamps and the use of reflectors are clearly illustrated. Shadow boxes and photometric curves demonstrate the relative values of the illuminating units. An exceptionally interesting feature of this part is a new boron car lighting regulator outfit to maintain the voltage on car lamps approximately constant for a wide variation in trolley voltage. Thus there has been recently developed the boron filament lamp with a decided negative temperature coefficient, which has the valuable characteristic that the voltage across the terminals of the lamp remains practically constant for a wide variation in current. A tungsten resistor has also been developed, which has a very high positive temperature coefficient and a characteristic such that the voltage drop across the filament increases very much faster than the current that produces the drop. While both the regulator and resistor are made in the form of lamps of various current capacities, the filaments are intended to run at a relatively low temperature, so that they cannot be used directly for lighting. If, however, the proper number of boron filament lamps are connected in multiple with the proper number of circuits of car lights and the proper number of tungsten resistors are connected in series with this combination, a regulator outfit is obtained that will maintain the voltage across the car lamps within about 3 per cent either way from normal for a variation in trolley voltage between 400 and 625. The principle of operation is very simple. The high positive temperature coefficient of the tungsten resistors prevents very wide fluctuations of current for changes in trolley voltage, and whatever fluctuations of current do result are automatically taken by the boron regulator lamps connected in multiple with the car lamps, so that the current through the car lamps, and consequently their candle-power, remains practically constant.

INDEPENDENT LAMP & WIRE COMPANY'S EXHIBIT OF ASBESTOS-COVERED WIRE

The Independent Lamp & Wire Company, in space 527, has a very instructive exhibit designed to demonstate the superiority of asbestos-covered wire over cotton-covered wire. One piece of apparatus consists of a field-coil testing transformer around the core of which are placed loops of wire made up of short lengths of asbestos-covered and cotton-covered wires connected in series and short-circuited. When the primary switch is closed the wires promptly heat up and after the cotton is burned off the asbestos remains as good as new. A coil of asbestos-covered wire is then placed around the core of the transformer in a pan of salt water. An incandescent lamp connected to the coil lights up to full brilliancy, indicating that the coil is not short-circuited by the water. Another piece of apparatus is a heating-element coil around which are wrapped turns of cotton-covered and asbestos-covered wire. The coil is heated up until the cotton insulation burns off. To indicate the temperature of the coil, solder wire is applied to a metal band surrounding it, and the melting of the solder gives a convincing demonstation of high temperature. An important element of the activities of the company is the reinsulating of "roasted" magnet coils of all kinds. When such a coil is received the old insulation is first removed and the wire is annealed. The wire is then welded up and reinsulated with asbestos and either rewound in the original form or returned to the customer on reels. A large collection of pictures is shown to illustrate the many kinds of work for which coils have been reinsulated and several actual coils are exhibited. There is also a sample board and numerous separate samples showing the company's work. Wires are insulated in sizes from No. 31 to No. 0000.

U. S. SIGNALS WITH A. E. R. A. ASPECTS—NON-SPLASHING ELECTRIC TRACK SWITCH

At space 401 the United States Electric Signal Company is exhibiting its standard line of apparatus, including the Type K and Type K^2 counting signals, the Type G signal, which allows but one car in a block at a time; the crossing bell, the S C signal, the Type M signal, the No. 9 contactor, the new current regulator and the Collins Type A electric track switch.

The S C signal is a counting type of signal, differing from the Type K and the Type K^2 signals in that it uses the indications recommended by the signal committee of the A. E. R. A. These indications are an all-light indication. The green light burns normally when there is no car in the block. The red light indicates danger and a red light staggered with a yellow light indicates a car in the block going away from the signal.

The new features which have never been exhibited before are the Type M signal, the No. 9 contactor, the current regulator and the Collins Type A electric track switch.

The Type M signal is an all-light signal, and is made practicable for use on electric roads where the trolley voltage is used for the signal by the use of a current regulator which keeps the lights constant, regardless of the fluctuation in voltage. One of the most novel features of this signal is the fact that the car is counted out of the block by a peculiar yet simple sequence of electro-mechanical actions. These actions cannot be reproduced by any combination of line wire troubles. This is a matter of greatest importance as a safety feature, for the most dangerous thing that can happen to a signaling system is to have the car counted out by line troubles while the car is still in the block. This signal shows no lights when there is no car in the block, shows a yellow light when a car is in the block going from the signal and a red light for danger.

The new No. 9 contactor has the novel feature that the contact finger is mechanically locked into the open non-contacting position, and cannot be jarred into contact by a trolley pole or any external jar.

The current regulator is a simple laminated wire solenoid device for regulating the current so that the amperage remains constant in the signal lights, regardless of the fluctuation in voltage. This is accomplished by the core of the solenoid shunting steps on a resistance tube for increasing or reducing the resistance in the line as the voltage rises or falls.

The new Collins Type A electric track switch has many new features never before incorporated in an electric track switch. Some of these points are that the switch cannot splash mud and water on pedestrians. The switch cannot be thrown between the trucks of a car by a following car. A most positive anti-straddling device is also a feature. The street box is automatically sealed without the necessity of making up any gaskets or pipe joints. Only 110 volts is used in the street box.

Messrs. Gammons, Bowen and Collins are representing the company.

PROTEAN COUPLER AT WESTINGHOUSE TRACTION SHOW

The success of the Westinghouse Traction Brake Company in meeting the requirements of modern electric train operation appears again in the present operating exhibit of its tight-lock car, air and electric coupler which automatically couples the electrical and air connections as well as the cars. Aside from this remarkable device, the company is making its usual extensive display of air-brake apparatus.

Jacks of all types, but all good, are shown by the Duff Manufacturing Company, including street railway emergency jacks, Duff high-speed ball-bearing screw jacks, Barrett Jacks, Duff-Bethlehem hydraulic jacks.

SAFETY DOOR DEVICE OF PREPAYMENT CAR SALES COMPANY

The Prepayment Car Sales Company, space 414, is displaying here for the first time its new line switch, safety device door control. This idea was first suggested by Harold Rowntree, treasurer of the company, who took out a patent on it in 1906. The late Frederick H. Lincoln, of the Philadelphia Rapid Transit Company, suggested another improvement on the Rowntree device and also took out a patent, which the Prepayment Car Sales Company acquired. These two patents may, perhaps, be best understood by referring to them as "the horse" which, of course, was not very useful without a harness or saddle. In 1913 J. S. McWhirter, superintendent of equipment Third Avenue Railway, New York, put the idea in practical use by devising the needed "saddle." At this time Mr. McWhirter took out a third patent which was duly assigned to the Prepayment Car Sales Company.

The Third Avenue Railway Company has used this safety device on all of its prepayment cars, which are being equipped with folding doors and steps. This covers 487 cars to date, and the railway expects to convert the rest of its rolling stock—about 1000 cars in all. By the use of this device, a car cannot be started until all the doors are closed. On new equipment, it saves the use of circuit breakers and canopy switches and prevents rapid acceleration and very materially lessens gear, pinion and motor troubles, as well as pull-ins of all kinds. The idea has long passed the experimental stage, is proving highly efficient and satisfactory on the Third Avenue System, has recently been adopted for new cars at Springfield and Worcester, Mass., and is expected to come into general use when its merits are thoroughly understood by the electric railway fraternity.

The Prepayment Car Sales Company allows its licensees to make free use of all of these patents and this device without any additional charge above the usual prepayment royalty. A special invitation is extended to engineers and mechanics to investigate the practical workings of the "Million Dollar Idea."

A THERMIT CRANKSHAFT REPAIR

Quite a remarkable crankshaft repair is being shown by the Goldschmidt Thermit Company in Machinery Hall. This shaft is 9¼ in. in diameter and was broken through one of the crankpins, near the crankweb. The fracture was opened up 1 in. by cutting away that amount of metal, then the two parts were aligned in V blocks and welded by the thermit process. After the weld was completed the shaft was placed on a planer and a large section cut out to show how thoroughly the two parts had been amalgamated by the thermit steel.

The Goldschmidt Thermit Company states that it has welded a great many such shafts for electric railways, electric light plants and refrigerating concerns and that the results have been uniformly successful. It seems that in practically all cases the breaks in the shafts are originally due to some flaw in the material. Often an old forged weld will give way in the case of built-up shafts. If the flaw is eliminated by means of a thermit weld the shaft will be better than ever, as the rest of the shaft will have been thoroughly tested while the weak point will have been discovered and remedied. Such crankshaft repairs are inexpensive and can be completed within a period of two or three days.

The company has many other exhibits of interest, as it is showing a new method for welding rails, which permits the railways to do their own welding for large jobs or small. A new model rail grinder is also on exhibition, equipped with a power derailing attachment which permits its derailment and removal from the path of traffic and replacement again in less than a minute.

NEW CONTROL SYSTEM AND PRESSED STEEL MOTORS AT WESTINGHOUSE ELECTRIC EXHIBIT

Probably the most striking feature of the exhibit of the Westinghouse Electric & Manufacturing Company is the actual operation of newly developed types PK and HL control. These control equipments operate motor racks equipped with 40-hp motors. The PK operating control head can be applied to any standard controller. The latest developments in HL control reduce the number of parts, make the form of equipment more compact, and permit a simpler arrangement of wiring. In connection with this control system a number of essential parts such as line switches, release valves, etc., are shown.

A complete line of commutating-pole motors including the box and split frame types for various voltages from 600 to 1500 are displayed aside from a preliminary sample of the new pressed steel motor and the "baby" motor developed for 24-in. wheels.

An extensive line of motor details including brush-holders, pressed steel gear case, commutators, armature and field coils, grid resistors, circuit breakers, fuse boxes, lightning arresters, and a model portable substation for rotary converter service are among other interesting features.

SIGNALS AS TRAFFIC ACCELERATORS

The exhibit of the Union Switch & Signal Company in space 133 includes a working model of the new "T.D.B." system of signaling which has enabled the Scranton & Binghamton Railway to dispense with dispatcher's orders for train movement, as described in the Electric Railway Journal for Oct. 3. By eliminating the time spent in transmitting train orders and in waiting for delayed trains against which the dispatcher has not advanced meeting points this railway has succeeded in materially increasing its schedule speed and in operating multiple-unit trains at fifteen-minute intervals in both directions. The model of the signal system that is exhibited is provided with miniature cars which may be moved in any desired manner or in accordance with any desired combination of movements, the signals changing their indications automatically just as is done under actual operating conditions. No possible sequence or combination of car movements has been found whereby two cars can get together. As the model embraces three double-ended sidings, and is completely equipped with semaphore and light signals, an excellent opportunity is afforded to railway men to study the features of protection and traffic acceleration that are provided by the signals. It should be said that the "T.D.B." or traffic direction block system was introduced only eighteen months ago, but since that time it has been installed on eight different electric railways.

WESTINGHOUSE LITERATURE AT THE CONVENTION

The Westinghouse Electric & Manufacturing Company has issued quite an elaborate lot of literature in connection with the convention as follows:

Railway Data Exchange No. 10 containing data dealing more particularly with improvements of voltage on interurban lines, effect of voltage on performance of motors, cost of stops and trailer operation, saving energy and train operation in city and interurban service. Heavy Traffic Centers, Circular 1549, shows a large number of handsome engravings illustrating the heavy traffic centers in various large cities where surface lines are equipped with Westinghouse apparatus. No. 1550, on 1500-volt direct current substation equipments, contains descriptions of different roads using this type of equipment. Maps are also given of the properties to show the territory covered, and much operating data are also included. Switchboards and accessories for use on 1500-volt d. c. lines are also illustrated and described.

Train Operation for City, Suburban and Interurban Service, No. 1546, is a collection of illustrations with brief notes showing the advantages to be derived from the use of multiple-unit trains. Several curves show the small amount of current required for a high-speed interurban car when handled in a careful manner.

Following its usual custom, the Westinghouse Company has this year issued a progress leaflet, No. 1552, in which is outlined the progress made by the company in electric railway apparatus. Among the items included are the Philadelphia terminal electrification of the Pennsylvania Railroad; the electrification of the Norfolk & Western Railway of the Bluefield Division in Virginia, and the recent addition to the New York, New Haven & Hartford Railroad.

The Westinghouse exhibit itself is described in circular 1551, with an art cover, representing "Joe and the General Manager" leaving for Atlantic City. This scheme is followed throughout the book in which they discuss the various pieces of apparatus in the Westinghouse exhibit.

PORTABLE CROSSOVERS AND MANGANESE PIECES AT WHARTON EXHIBIT

Among the new types of track work shown by Wm. Wharton, Jr., & Company this year are extra heavy switch pieces for portable crossovers, used more particularly in reconstruction work. These crossovers are of much larger radius than the old type, as they are made 75 ft. to the inside rail as against the 60 ft. radius used in previous designs. The rail used weighs 110 lb. per yard, the heaviest flat guard section rolled, while the switch pieces are of solid cast steel with pockets into which the adjoining rail is securely fastened. Two types of frogs in this construction are on exhibition, one that can be adjusted for variations of 9 in. in the devil strip and the other for use where the devil strip remains the same.

Also on exhibition are the company's well-known standard switches, the H. C. B. in solid "Tisco" manganese steel, and the H. T. in "Tisco" manganese steel keyed center construction. With these are shown different types of throwing attachments. "Tisco" manganese steel castings for use on car trucks where the wear is excessive are also on view. The "Tisco" brand is made by the Allied Taylor Iron & Steel Company, High Bridge, N. J., the only American company making manganese steel under the original patent of the inventor, R. A. Hadfield.

Beside the foregoing the company shows interesting pictures of complicated layouts, which it has furnished to roads in different parts of the country.

BRILL GRADUATED SPRING TRUCK

What is probably the newest truck in the electric railway field is the No. 76-E type of The J. G. Brill Company which is exhibited this year in the spaces where the company has been located for a number of years. This truck is a center pivotal two-motor type with the new Brill graduated spring system for light and heavy loads. This spring system originated in the Brill single motor truck No. 39-E and is the standard arrangement in that truck. It consists of a coil spring mounted on a semi-elliptic spring under each end of the bolster; the coil spring is limited to a play of ⅜-in. by means of a seat casting which contacts with the bolster when compressed that amount. When the coil springs stop acting, which occurs when the car has between half and a full load of seated passengers, the spring action is transferred to the semi-elliptics. Therefore, the lightly-loaded car body is carried on soft acting soil springs and is given a singularly smooth motion; the semi-elliptic springs being friction springs are incapable of absorbing the minor vibrations and shocks which are commonly felt in a lightly-loaded body, but are, of course, entirely suitable for the heavily-loaded body. A number of cars mounted on this type of truck with both 33-in. and 24-in. wheels are shown in an illuminated photograph stand in the booth.

Among the Exhibits

A miniature section through a boiler house is being shown by the American Engineering Company to illustrate the boiler, stoker, ash hopper, air duct, fan equipment and the proportions of a modern plant. The section is one-quarter size.

* * *

A new trolley catcher and also a new trolley retriever will be exhibited for the first time at space 328 of the Sterling Fare Register Company with which their maker, the New Haven Trolley Supply Company, is associated. The latter company also manufactures and handles the Sterling fare registers and recording fare registers.

* * *

The Yarnall-Waring Company is showing at the association convention for the first time new unloaders for both steam and motor-driven compressors. These include suction and pressure unloaders. A 4-in. starting unloader has been sectioned so that the working parts can be clearly seen. The Lea water meter, which was shown last year in operation, is again displayed.

* * *

The International Steel Tie Company is showing its new method of straight and cross-bonding track by electric welding the rails to the plate on the top of the tie and the plate to the transverse channels. This method of bonding is used with its standard track tie and makes unnecessary any other kind of bond. This practice is also shown by the Indianapolis Switch & Frog Company, which is displaying a piece of track laid on International steel ties.

* * *

A machine and chemical process for the cleaning and restoration of cane or rattan cushions is being shown by the Imperial Car Cleaner Company, Newark, N. J., in practical operation for the first time at a convention. Cushions are taken in all stages of discoloration and restored to their original brightness and cleanliness. The process is very simple and the chemicals used in conjunction with the machine can also be used by hand if desired.

* * *

The first all-light signal, operated by overhead contactors, having the official A. E. R. A. aspects is shown at spaces 117, 119 by the Street Railway Signal Company, Inc., Philadelphia, Pa. The accessibility of parts and inability to put the signals out of step by improper car operation are asserted to be special features of this company's apparatus. Its mechanical type contactors are also said to be the highest speed contactors yet put upon the market.

* * *

Among the valves which the Nelson Valve Company is showing is the Nelson-Erwood swing check and gate valve which is especially adapted for back pressure work. Another interesting valve is an iron body bronze mounted balanced control float valve which is designed to be absolutely tight. The large 16-in. steel Monel mounted gate valve is for use on high pressure superheated steam, total temperature of 800 deg. Fahr. Other valves of interest are iron-body gate, globe and throttle valves; also bronze gate, globe and check valves.

* * *

The Elastic Car Waste Company, space 576, is exhibiting for the first time at the convention sample rolls of its journal box packing made of a shape and size to fit the boxes closely. The rolls are made of carpet waste yarn adaptable to the size of the car journal boxes and are interwoven throughout with a fine brass spring wire which gives permanent elasticity and keeps it in contact with the journal bearings. It is sold in several grades. Two bearings are shown packed to give a practical idea of its application for both steam and electric railway service.

A novel type of electric railway car is shown by the Laconia Car Company opposite the entrance to the steel pier. It is the first car of this type built and is shown completely equipped. This car is of center-entrance, low-level, truckless type, and seats more passengers than any other car of its length, and the weight per seated passenger is also said to be less than that of any other car yet shown. A model is presented to illustrate the action of the non-oscillating levers, together with a model of a double-truck, center-entrance trail car seating sixty-four passengers.

* * *

The Nachod Signal Company, Inc., is showing for the first time at the convention the new A. E. R. A. light signal, using three line wires, with normally closed signal circuits, and giving indications by lights only. The light case is fitted with deep hoods and mounted for adjustment to grade and curve on a bracket bolted to a separate signal pole. The counting relay, which is of the following ratchet type, and the neutral relay are separate units mounted in an iron box made a part of the pole. The signal is demonstrated on a miniature track plan by moving cars over it at will.

* * *

Owing to the increasing interest of electric railway engineers in transmission line construction, Hubbard & Company of Pittsburgh are showing for the first time their complete line of standard pole line hardware and Peirce specialties. The new articles which include the Presteel pole, a box channel bracket arm, a forged steel feeder pin and the Steelwing screw anchor, with the Hubbard Bo-Arrow arms, forged-steel pins and a variety of fixtures and cross-arms, indicate the extent to which galvanized steel is replacing wood and cast iron in overhead line construction.

* * *

The Automatic Ventilator Company is exhibiting, in addition to its well-known line of car ventilators, a line of trolley wheels and harps, the product of the Universal Trolley Wheel Company of Northampton, Mass., for which company it is general sales agent. These wheels are of interest in that they are of the self-lubricating type, using hard grease contained in a pocket in the hub, which, by an ingenious and simple arrangement, is automatically fed to the bearing, as needed. The grease pocket contains enough lubricant to last during the life of the wheel and the user is thus relieved of the expense and trouble of wheel lubrication.

* * *

A really worth-while souvenir of the Speer Carbon Company exhibit is its book on carbon brushes issued as Price List No. 7, a title which does not do justice to its contents. It is not usual to find a catalog on carbon brushes contain more than lists of dimensions and prices. This book is an exception to the rule in explaining just how a brush should be ordered and showing how the manufacturer has classified the grades for different sets of conditions after elaborate tests to fix the electrical and physical characteristics desirable for each kind of service. The permanent record of these tests is found in the great number of load curves reproduced.

* * *

This year instead of exhibiting aluminum models the National Brake Company decided to use the actual brakes just as they are shipped out to its customers. The company has on exhibition beside the regular sizes of the Peacock brakes all the different sizes of the Peacock improved brake, the Ackley adjustable brake, and four or five designs of special brakes, several of which have never been shown before. In all there are sixteen or seventeen different brakes, the purpose being to illustrate the extent to which the company has gone in designing brakes to meet special requirements. The company also has on exhibition a full line of parts manufactured by it.

This year the Star Brass Works are showing only Kalamazoo wheels and harps, but the exhibit includes a new type of wheel 10 in. in diameter, which is shown for the first time.

* * *

The American Car & Foundry Company has handsomely furnished quarters, where visitors may rest comfortably in the vicinity of the company's exhibit of wheels as used on some of the largest railways in the United States.

* * *

The new Schutte mechanical trolley wire clamp, which is made for all sizes of round and grooved trolley wire, is meeting with considerable success, particularly for overhead trolley construction. These clamps are manufactured and sold exclusively by the H. W. Johns-Manville Company, and are exhibited at space 336.

* * *

The Globe Ticket Company is showing several improved forms of the Pope patent P. M. coupon transfer as well as other new styles of transfers and tickets which have recently been adopted by many companies. One of the most interesting of its exhibits is a unique collection of tickets of every description from all over the world.

* * *

The American Mason Safety Tread Company, space 358, is showing a fine assortment of Mason lead and carborundum filled safety treads and Karbolith sanitary car flooring, as well as its well-known self-cleaning, non-slipping Stanwood car steps. It is also presenting a new type of filled Stanwood step, which is especially designed for closed vestibule cars.

* * *

The Nungesser Carbon & Battery Company, Cleveland, Ohio, is showing a complete line of high-grade carbon brushes for traction and power-house service. These brushes are manufactured according to a new method of electrical tempering. They are reported to be giving very satisfactory operation in actual service.

* * *

The Sauvage-Ward Brake Company, New York, is displaying at space 501 a full line of automatic slack adjusters and solid adjustable bottom rods. These adjusters give an increase in shoe mileage of from 25 per cent to 100 per cent, and an absolutely uniform brake action. They eliminate the necessity of any hand adjustment, automatically taking up slack as fast as it develops. They are applicable to all types of trucks.

* * *

The Lord differential staffless brake and the new Perfected Giant brake described in the Oct. 3 issue of the Electric Railway Journal are on view for the first time at space 577. One of the noticeable gains in the differential staffless brake is its space-saving feature as only 6½ in. extended space is taken up on the car platform. The differential principle, which has never been applied to car braking heretofore, offers a simple means for obtaining any power required in the use of a hand brake. The Perfected Giant brake is said to be the lightest geared brake yet designed. One of its new features is an adjustable automatic stop to eliminate lost motion when the motorman applies the hand brake.

* * *

The Johnson Fare Box Company is showing for the first time, in connection with its standard registering fare box, a new ticket cancelling and counting device on which it has been experimenting for the past two years. This device is attached to the company's regular fare box and is operated by electric motor, so that the tickets are passed through two rolls and automatically cancelled and registered at the same time; and run into a separate compartment from the coin. The company is also exhibiting its electrically driven fare box with special examination attachment for use in elevated stations. This machine was designed for the Chicago elevated roads and has many unique features specially adapted for elevated and subway station service.

* * *

The American Brake Shoe & Foundry Company offers at the Convention the improved types of brakeheads, association standards for narrow tread and broad tread wheels. These brakeheads are of what is termed the "plate" type, which make a much stronger brakehead and give a better distribution of metal on the wearing parts of the brakehead. This construction also permits the use of a shorter brakehead key, which is desirable in many cases. The company also shows various types of association standard brakeshoes, with and without brakehead guides; also some of the flange filled composition brakeshoes, which have been successful in reducing the noise incident to the brake application, in conformity with the requirements of the Public Service Commission of the New York District.

* * *

Among the several features exhibited by the Bayonet Trolley Harp Company, Springfield, Ohio, are some important improvements in trolley base construction designed to reduce maintenance costs. It is also showing in connection with its well-known standards in detachable trolley harps some new ideas in trolley wheels and trolley axles, designed to carry a maximum amount of lubricant with provision for its proper distribution on the bearing surfaces, being especially adapted to high-speed service. "Trolley Equipment Defects and Their Remedy" is the title of a very interesting little booklet the company is giving out. This booklet presents some very important information on trolley inspection, repairs and lubrication. It is based in part on articles contributed by C. W. Squier to the Equipment and Its Maintenance department of the Electric Railway Journal.

* * *

The Jennison-Wright Company, Toledo, Ohio, a newcomer at this convention, is showing the different types of wood block for paving between street railway tracks and on bridges. Its Kreolite lug block is designed to eliminate the three objections hitherto urged against the ordinary rectangular creosoted wood block, namely, bulging, bleeding and slipperiness. The lugs on the side of each block provide a strong foothold for traffic. The lug in the center of one end of each block is wedge-shaped or pointed, so that any expansion is concentrated on the point of the collapsible lug. These features are especially desirable for paving between rails, for should the blocks expand the rails are not pushed out of alignment. Different types of nose and filler block for paving adjacent to rails are also displayed. The Kreolite Hex block is another design which is said to be superior to the usual rectangular block, especially for bridge flooring.

* * *

The "Nokoro" demonstration of the non-corrosive heater wire which has been developed after many years of careful research by the Consolidated Car-Heating Company and which is being shown at space 22 is attracting much attention. To demonstrate the non-corrosive qualities of the wire a coil of the same is shown suspended in a glass tube, and is overloaded with electric current until it runs at a red heat. The test is made more severe by a steam bath in which the red hot coil operates. A pyrometer attachment gives the coil temperature, and inasmuch as under normal operating conditions the temperature of the coil rarely exceeds 450 deg. the test shows conclusively the non-corrosive qualities of the wire, The Consolidated Car-Heating Company is using this coil as standard on all of its heaters and is also furnishing same for repairs on old heaters. A complete description of this wire was given in the Oct. 10 issue of the Electric Railway Journal.

In space 313 the Whittier Mills Company is displaying U. S. Spiral and Silver Lake waterproof trolley and signal cords.

* * *

The Universal Lubricating Company in space 370 is showing its Tulc lubricant for armature and motor axle bearings, journals, trolley wheels and air compressors. This product is furnished in six different grades in quantities of 5 lb. or more.

* * *

The "Ce-Ve" process of varnishing cars of wood and steel as well as retouching and resurfacing where the color has faded are the principal topic of conversation in spaces 574 and 575, where the Chicago Varnish Company is exhibiting. Samples of the various kinds of surfacing which are familiar to practically every railway master mechanic are also shown.

* * *

A complete line of electric specially-ground steel gears and pinions is being shown by the Edgar Allen American Manganese Steel Company at space 500. The peculiar characteristics of manganese steel are clearly shown by a sample gear and pinion which have been distorted cold without a sign of a fracture on the rim of the gear. The pinion was subjected to 245-tons pressure and the gear to 125-tons pressure to produce the results shown.

* * *

The feature of the exhibit of The O. M. Edwards Company, Inc., in spaces 519 and 420 is a trapdoor with a non-slipping tread. A diamond steel plate is used so that no floor covering is required. Among the articles shown are a metal sash with sash locks and a top tightening device; a high station platform door, giving an extension threshold; a window entirely of steel construction with the exception of the wood sill, and an all-steel desk, illustrating the company's line of all-steel office furniture.

* * *

The Trolley Supply Company, in spaces 366 and 367, is featuring its No. 5 retriever, the Simplex trolley stand and its No. 3 detachable fender. The reliability of the No. 5 retriever has been demonstrated and its principal claim is the ease of making repairs in case of a broken trolley rope. The Simplex roller-bearing trolley base is constructed on strictly practical lines and is so designed that increased tension is obtained as the pole goes up. All working parts are made of vanadium steel, case hardened, thus insuring maximum strength and long life.

* * *

Something new in trolley stands is the center of attraction at space 613 where the Wasson Engineering & Supply Company is exhibiting. This new type air retrieving trolley base has recently been developed and put on the market as an ingenious combination of the current-collecting merits of the trolley wheel and the non-jumping qualities of the pantograph for high-speed interurban work. The principal feature of this device is the combination of an air-operated receiving cylinder and auxiliary springs to maintain uniform tension when the pole is in the normal position on the wire. The major part of this base is made of cast iron but those parts which are subjected to the greatest strain are made of annealed carbon steel. Brass, bronze and leather also enter into its construction.

* * *

The great number of uses to which an electric welder may be applied are demonstrated by the Indianapolis Switch & Frog Company in space 173. The demonstrations include track welding and grinding, and reclaiming shop and rolling stock equipment. The Indianapolis electrically-welded joints and bonding plates are of special interest in this exhibit since they, in conjunction with the portable electric welder, make it possible for a road of any size to install welded joints in either large or small quantities and to apply compromise joints by a method which does not simply melt but perfectly welds without heating the rail appreciably. Already thousands of these joints are being installed by roads having the Indianapolis welder, and the joints have been thoroughly tested for several years through all changes of temperature and under all traffic conditions.

* * *

The American Lock Nut Company in space 512 is making its debut this year. This company is introducing the Absolute lock nut which has been thoroughly tested by several electric and steam railways where it demonstrated its claims. In principle the lock is somewhat similar to that of a roller clutch, consisting of a tapered recess machined on the inside of a nut so that one side of it will be closed by the bolt when the nut is in place. A small bobbin-shaped pin is set in this recess and the direction of the flare in the recess depends on whether the threading is right or left hand. In either case the forward motion of the nut carries the locking pin along with it into the deeper portion of the recess where it revolves free. If the movement is reversed the bobbin is forced toward the shallower portion of the recess where the angle is so designed that it automatically wedges the locking pin into the thread of the bolt. This locking device is made for all sizes of nuts.

* * *

The Golden Glow railway fog penetrating and non-dazzling incandescent headlights and reflectors are proving an unusal drawing card in the Esterline Company's space 318. Among the new things this company has to show at this exhibition is the type T-128 electric interurban railway headlight equipped with a dimmer for city service. Like the other headlights shown this new one is an incandescent type employing as a source of light a concentrated filament Mazda bulb of high power and intensity which is said to give a steady, uniform roadway and right-of-way illumination. The parabolic glass reflector, manufactured of glass colored so as extract the blue and violet rays, renders the golden light which gives this lamp its name and which makes its rays less blinding without detracting from the illuminating qualities. It is further asserted that numerous tests on interurban lines demonstrated that this lamp when fitted with a concentrated bulb will enable a motorman to see light-colored objects on the track a distance of 1200 ft. and dark-colored objects at 900 ft. to 1000 ft. The same size of lamp is shown with deck stand and bracket; also the Golden Glow locomotive headlight.

* * *

The Simmen speed control and automatic stop device exhibited in spaces 153 and 155 by the Simmen Automatic Railway Signal Company is certainly worthy of study. This device was shown for the first time at the National Railway Appliances Association exhibition held in Chicago last March. In general it is designed to control the movement of trains over any railroad according to a predetermined adopted maximum speed. For instance, freight trains may be limited to a maximum speed of 30 m. p. h. and passenger trains to 70 or 80 m. p. h. In either case when a train approaches a block indicating danger, the engineer is forced to lower his speed from the predetermined maximum to either zero or some minimum speed under control, say 10 m. p. h. or less as elected by the railway company. If a train enters a block and exceeds the pretermined minimum speed, the air brakes are automatically applied to bring the actual speed of the train again below the minimum. This device is also designed to control the speed of trains around curves and may be installed to inforce any particular speed established suitable for any part of a curve. This company is also showing its dispatcher's recording apparatus for automatically recording the movement of trains. This device is used with the well-known Simmen cab signals which are controlled from the dispatcher's office.

Bonney Vehslage Tool Company, New York, displays in space 328 in a neatly constructed case forty-five different styles of standard ticket punches.

* * *

Various types and designs of brakeshoes for all kinds of railway service, in conjunction with its overhead trolley switch, form the features of the Railway Materials Company's exhibit in space 535. A portion of this company's booth is fitted with attractive furniture for the comfort of its guests.

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E. P. Sharp, manager of the railway department Lumen Bearing Company, Buffalo, N. Y., is attending the convention in the interest of the Ideal trolley wheel. Samples of the Ideal trolley wheel are exhibited by the R. D. Nuttall Company, spaces 140 and 144 Machinery Hall.

* * *

J. W. Griffin of the Wheel Truing Brake Shoe Company, who is one of the oldest regular exhibitors at the convention, is showing samples of his product in space 505. Not only is Mr. Griffin a familiar character but his wheel truing brakeshoe has become equally well known.

* * *

Back in its old spaces 101, 103 and 105 the Chicago Pneumatic Tool Company is attracting attention with its line of portable electric drills, grinders and portable pneumatic tools. The feature exhibits include the Duntley screwspike driving machine, along with this company's electric track drill in operation. A case of sample spikes driven by this electric driving machine on several street and interurban railways is also on exhibition.

* * *

Northern white cedar cross-ties that have been in actual service from five to twenty-nine years, and sections of cedar poles that have been in service twenty years, as well as sections of cedar poles that have been treated by the open tank process are being exhibited by the Naugle Pole & Tie Company in spaces 332 and 334. This company recently has installed an open-tank treating plant and is now prepared to sell treated or untreated cedar poles.

* * *

One of the best and most brilliantly lighted booths in Exhibition Hall is that of the Western Electric Company. The lighting here is accomplished by means of four 500-watt gas filled Type C Sunbeam Mazda lamps suspended from the ceiling. This type of lamp is commercially new this year and burns at a very high efficiency (½ watt per candle). It is manufactured in 500, 750 and 1000-watt sizes for either series or multiple burning and is adapted for either indoor or outdoor service when used with the proper fixtures.

* * *

The well-known F. C. S. brand chilled-iron car wheels for city and interurban service are being shown in various types and sizes by the Griffin Wheel Company in spaces 143, 145, 147 and 149. The combined capacity of this company's plants, which are situated in Chicago, Detroit, Boston, St. Paul, Kansas City, Denver and Vancouver, is approximately 1,500,000 wheels a year. In addition to its wheel business this company makes axles for various classes of railway service. This company is also showing its wheel grinder which is designed for use without removing the wheels from the truck.

* * *

The Eclipse Railway Supply Company at spaces 571 and 573 is showing the Eclipse trolley retriever. It is said that this retriever has been in hard service for the past eighteen months and has proved its substantial and reliable qualities. It retrieves the pole with less than a 3-in. jump and is so constructed that the tension of the springs may be readily controlled. The number of parts in this device are said to be less than in any other retriever and the maintenance cost is correspondingly decreased. In addition to this retriever the company is also showing its various types of fenders and wheel guards.

* * *

The Massachusetts Chemical Company products manufactured by the Walpole Tire & Rubber Company are exhibited in space 333. In glass containers are shown samples of Walpole shellac white; Resistolac, a permanently plastic homogeneous black insulating compound; Enamelac, a black insulating varnish for painting surface exposed to the action of acids, gases and water; Insulac, a transparent quick-drying insulating varnish; Armalac, for the permanent reinforcement of the insulation of cotton covered magnet wire in field and armature coils. Walpole friction tape and other insulating specialties are also displayed.

* * *

Hauck Manufacturing Company, Brooklyn, N. Y., is a newcomer to this convention, displaying, in Aquarium Court, various types of kerosene torches for railway work. One interesting part of the exhibit is an adjustable tire heater for expanding and shrinking on truck and locomotive steel tires. This is operated by a 12-gal. pressure kerosene tank. Another equipment of a similar nature is used for melting the spelter in repairing special track work in manganese center inserts. Preheating oil burners preparatory to electric, thermit or oxy-acetylene welding are also shown. Besides these there are exhibited various small torches for armature repairs and repair shop work.

* * *

The Van Dorn Coupler Company is showing several types of its favorably known couplers in space 533. This company has developed several new drawbar heads of the M.C.B. and automatic type during the past two or three years and is now prepared to build the best type of coupler that can be had for any service. In the latest design provision is made in the head for the automatic coupling of the air-line and electric control cables at the same time that the automatically-operated heads are coupled together. W. T. Van Dorn, the inventor of the Van Dorn couplers, which have been standard equipment on most of the leading electric railways of the country for twenty-five years, is in personal charge.

* * *

With the exhibit of the Mark Manufacturing Company the products of the National Formed Metal Products Company are being shown by J. W. MacDonald. These include a new light-weight conduit and fittings which have been especially designed for car work. In the average four-motor car the conduit weighs about 1200 lb. if of the old kind and 310 lb. if of the new. The manufacturer has developed a process by which it is possible to produce a light-weight threadless conduit on a commercial basis. He has overcome the collapsing of pipes in the cooling process, the one feature which prevented pipe manufacturers from marketing conduit of lighter weight than merchant weight in the earlier days. By this improved process no scale is formed on either the interior or exterior of pipe during its manufacture.

* * *

The Ellcon Company, New York, William Wampler on board, has a great exhibit. If you like variety don't miss it. There is something of interest there also for the ladies. Bill has discovered a new metal as clear as silver, as light as wood, as strong as steel and for practical purposes as good as gold. He has samples of every conceivable size and shape for every purpose from kitchen utensils and knives and forks to car trimmings. This metal is made by the Garford Engineering Company, Elyria, Ohio, which has acquired the exclusive right for its manufacture in the United States from its originators in England. There is also exhibited by this company a fine class of white enameled car trimmings, such as has been installed on the new center-entrance cars of the Brooklyn Rapid Transit System.

The Thew Automatic Shovel Company exhibit consists of photographs, blueprints, specifications and circulars illustrating its electric shovels designed especially to meet the particular requirements of electric railways.

* * *

The General Railway Signal Company has on exhibition, in spaces 604 and 606, a photographic record of a number of continuous track-circuit installations, with both light and semaphore type signals, as recently installed on several electric railways.

* * *

American Railway Supply Company, New York, showing its line of badges, conductor punches and buttons, will be found in the Annex, space 526. It also shows, for the first time, a self-adjustable folder rack, with movable partitions, by which folders of any width may be accommodated. This is a unique feature, worthy of examination. For the nineteenth consecutive convention Walter Chur is in charge.

* * *

The Pennsylvania Steel Company has issued a special book to describe its exhibit. Thus page 7 relates to the Manard hard center frog, page 9 to the improved interior joint used by this company for all types of solid manganese crossings, pages 20 and 21 to physical testing of Mayari heat-treated chromium nickel steel and page 22 to Mayari steel shovels. With regard to the last attention is called to the economy that the way engineer can effect by the use of this type of shovel.

* * *

The Seymour portable rail grinder, exhibited in Machinery Hall by E. P. Seymour, of Waltham, Mass., is a newcomer at the convention. This is a light portable machine of simple construction for grinding corrugated rails and rail joints. Although the machine is operated by a motor it weighs less than 800 lb. and can be easily removed from the track by two men. A number of these machines are in use on electric railways in the New England States.

* * *

In addition to its regular line of products, the Dayton Fare Recorder Company exhibits a special combination fare box designed for elevated and subway stations. This device comprises its regular standard fare box equipped with special coin display mechanism to enable the operator or attendant to examine the coins more carefully before they pass from view into the fare box hopper. The company regards this as the ideal fare registering equipment for elevated and subway stations.

* * *

A first showing of an improved type of the Utility honeycomb ventilator is made by the Railway Utility Company. The metal composing the top, front and bottom of the ventilator is pressed into rows of cup-shaped louvers which are so formed that air currents passing over them from any direction cause a powerful exhaust. The ventilator is double-seamed and is galvanized after manufacture. It has no riveted or soldered seams whatever. Several varieties to suit various types of cars are shown. One type is a combined ventilator and lighting fixture in which the fixture is supported from a condulet fitting inside the ventilator.

* * *

A new register for steam and interurban service is displayed by the Ohmer Fare Register Company. This register is designed to indicate, record and print a record of fares in multiples of cents from one cent up to $10. It will meet the requirements of large interurban and steam railroad properties. It is operated by the conductor from any part of the car. This company is exhibiting also, for the first time, its tubular fare box for prepayment cars. This box is simple in construction and takes up very little space on the platform. The fares are deposited in an inner tube which is automatically locked each time it is removed from the outer casing.

Thayer & Company, Inc., space 511, are showing the Chillingworth seamless drawn-steel case commonly referred to as the "one-piece gear case" on account of each half being drawn from one piece of sheet steel, thereby eliminating seams and rivets. Aside from their new designs of bracket construction on the side-suspended cases for General Electric motors, they are exhibiting a case suspended from the ends that is used on Westinghouse motors but can also be adapted to General Electric motors. This case is entirely rivetless and is 50 per cent lighter than malleable-iron cases. Probably the most unusual case exhibited is one that has been sawed in two through the brackets, illustrating the uniformity of metal thickness of the case and the thickness and construction of brackets and reinforcing plate behind the bracket inside the case. The company is represented by G. K. Wannemacher, secretary.

* * *

During the year the Columbia Machine Works & Malleable Iron Company has added a new line to its already extensive and varied products. In space 620 in the Annex is displayed a complete line of N. W. renewable fuses and N. W. connectors. Various sizes and capacities of fuses from 50 amp 600 volts to 10 amp 600 volts; 600 amp 250 volts to 10 amp 250 volts. N. W. cable connectors of all sizes and shapes are exhibited. Of the standard line of repair shop and car equipment specialties there are on exhibition a coil-winding machine, Columbia car replacer, sectional trolley cars and ratchet brake handles. The many friends of John G. Buehler, the president of the company, will regret to learn that he is unable to be present at the convention this year. James Grady, the vice-president and general manager, and W. R. Kerschner, sales agent, are taking care of the interests of the company at the convention.

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Among a general line of solid managanese track special work, the St. Louis Steel Foundry Company in space 14 is showing its special undercut steel tongue switch in both the tadpole and standard designs. The tadpole switch is designed with special provision against the loosening of the tongue under the severest operating conditions, with the resultant tendency to form a lip on the runway rail as well as to overturn under wheel pressure. This switch is cast of solid manganese ground so that the tongue fits accurately, and the heel of the tongue is so designed that a new tongue may always be fitted with the old socket in case it becomes defective. By providing an undercut socket bearing at the heel this switch conforms to St. Louis Steel Foundry Company's original design, but the bearing area has been materially increased and the tongue proper has been reinforced by a web which forms the throatway for the whole length of the tongue.

* * *

Among the new exhibitors is the Sattley Manufacturing Company, Detroit, Mich., spaces 378 and 379. This company demonstrates its various advanced coin sorting, counting and packaging machines which are designed to save time as well as reduce the cost of counting coins. These machines make possible a quick calculation of the receipts of individual conductors or lines, and eliminate disputes and discussions in regard to the correct amount of coin sent in by conductors or given them for change. The machine sorts cents, nickels, dimes, quarters and half dollars, counts them in separate denominations and packages or sacks them, as desired. The operation of the machine may be so controlled that all coins may be sacked or packaged, or any combination of these operations may be made as desired. These machines also detect and throw out mutilated coins without counting them. Money in different denominations may be placed in the machine and a count will be registered in dollars and cents, showing accurately the amount of each denomination and the sum total of all denominations.

The Curtain Supply Company's exhibit at space 638 includes various types of Ring curtain fixtures for both closed and open cars; Rex all-metal rollers, Rex steel sash balance, bulkhead sliding-door curtains, friction roller curtains, and Acme and Climax cable fixtures for open cars.

* * *

Among the exhibits of the American Steel and Wire Company in spaces 558, 559, 560 and 561, are a spindle drill electrically operated and a hydraulic compressor. A varied display is offered of electrical wires and cables, together with a right-of-way fence on steel posts, rail-bonds and a rail-bond testing apparatus.

* * *

Besides a great number of types and shapes of low voltage glass insulators the Brookfield Glass Company, New York, N. Y., features two high-voltage glass insulators, one of 33,000 volts and another of 40,000 volts. A large number of these latter types are installed on high-voltage transmission lines in California. One glass insulator of 18,000 volts is shown similar to an installation of the same type by the United States government on the Sun Reclamation Irrigation Project in Utah.

* * *

The Atlas Railway Supply Company is showing for the first time the Atlas track grinder. This grinder has been tried out by one of the railways in the Central States for about a year, and is notable for ability to operate efficiently under one man. The motor is mounted above the grinding wheel, thereby preventing all chattering. The two auxiliary wheels mounted on the motor side enable one man to remove the grinder from the track to permit a car to pass. The company also presents a complete line of rail joints, braces and tie plates.

* * *

The Lutz-Webster Company is exhibiting a full line of Lutz compression tools and the Lutz universal adjustable watertight floor box. The compression tools include a universal compression wrench for use on all finished or rough surfaces without marring or slipping. It is used in conjunction with the Lutz no-set screw lathe dog, compression ratchet, single-piece ratchet, solid and swivel arm, self-feeding drilling post and nut and bolt sockets. The Lutz floor box gives full adjustability in every direction and is perfectly watertight.

* * *

The Automatic Cashier Corporation, Norfolk, Va., is making its first convention display of the Automatic Cashier for the collection of fares. The machine is so constructed that by simply pressing a lever for the desired number of fares to be taken out of any coin inserted in the slot of the machine by a passenger, the operator delivers the change, simultaneously indicating and registering the transaction. Features of the machine are, that the machine is locked until a coin has been inserted, accepts coin for its face value only, keeps in sight the last coin inserted and ejects spurious coin.

* * *

The Bemis Car Truck Company, Springfield, Mass., has added to its exhibit of last year the Royal Worcester track broom. This is a renewable wire broom especially suited for track cleaning. High efficiency case-hardened and manganese steel brake pins are also exhibited. Samples of these pins, which have been in service for more than 100,000 miles with hardly any noticeable wear, are shown. There is a display of other manganese steel specialties such as sweeper chains, car replacers, brake levers, brake heads, bushings for brake pins and controller handles and manganese bronze check plates.

* * *

The Tool Steel Gear & Pinion Company, Cincinnati, is showing with the U. S. Metal & Manufacturing Company, New York, a collection of gears and pinions which have been in railway service for a number of years and which have made very satisfactory mileage records. One of the most interesting is a gear and a pinion from Denver, which are still good for considerable additional life after having run 191,222 miles in service where untreated pinions averaged only 45,000 miles. This is one from a set of four which went in on the original test. The rest of the material is still in service, having given the same mileage as the gear and pinion shown in the exhibit. The company is also showing an exceptionally large and heavy gear and pinion of the type being furnished to the London & South-Western Railway, London, England, for heavy electrification. The gears weigh approximately 575 lb.

* * *

The New York Switch & Crossing Company has on exhibit a number of switch pieces embodying its latest improvements in girder rail track work. Among them is its new type tongue switch for heavy service constructed of 9-in. 150-lb. rail and equipped with a universal device. The bed and tongue of this switch are manganese steel. The tongue is reinforced on both sides, has an enlarged circular heel, is absolutely pinless and is designed for the heaviest traffic. A separate tongue casting, exactly like the one in the switch, shows the beveled end and full bearing at the heel, and it is this feature which gives the switch its distinguishing character. The company also shows a girder rail mate with manganese insert, a hard center frog, iron-bound construction, and a solid manganese switch with the well-known anti-locking attachment to prevent cars straddling the track.

* * *

The new part of the exhibit of the Taylor Electric Truck Company, Troy, N. Y., is a Taylor maximum traction truck, especially designed by Mr. Taylor to meet the demand for this type of truck. The essential feature of one-half of this truck is the same as that of the Taylor M.C.B. long-base truck with the two pony wheels added. The brake rigging is hung between the wheels and designed so that the brakeshoe is applied below the center of the journal, thus eliminating the tendency in this type of truck of the small wheels lifting or creeping upward when the brakes are applied. The fulcrum of the brake leverage is equally balanced with the hang and weight of the motor. To give easy riding qualities the wheelbase is slightly longer than is customary in this type of trucks. There is also shown an M.C.B. triple-spring truck with improved inside-hung brakes and a Taylor long-base truck. Of this latter type there are 350 in use on the Boston Elevated Railway. Other parts of the exhibit are elliptic and spiral springs and a newly designed improved wrought metal bolster with adjustable chafing plates and self-lubricating center bearings.

* * *

An interesting part of the Pantasote Company's exhibit is a piece of Agasote taken from a shipment to Barney & Smith, Dayton, Ohio, two years ago. This shipment was lost in the flood. When it was found it had been water-soaked for nearly a month, but the headlining was in perfect condition and after being cleaned it was used in the construction of the cars for which it was ordered. A new composition board called Vehisote is also exhibited. This board is similar to Agasote in that it is waterproof and will not warp but it is lighter and can be used in the construction of cars where the elimination of weight is an important factor. There is also exhibited a piece of Agasote flooring which has been in service in front of one of the ticket booths of the Hudson & Manhattan tunnels. Although approximately 760,000 passengers have passed over this piece of flooring, very little wear is shown. To illustrate the flexibility of Agasote, the platform hood of a car is shown. This part of the exhibit also shows how Agasote can be used for the roof of a car as well as headlining and interior finish. The rest of the exhibit comprises car seats upholstered in Pantasote and Pantasote for car curtains.

The Pittsburgh Steel Company is exhibiting at spaces 162 and 164 a sample of its galvanized wire fencing, a more heavily-coated style of which has recently been put on the market. This company is also displaying an ornamental station ground fencing with rounded top.

* * *

The exhibit of the National Lock Washer Company, space 539, consists primarily of models of car curtains, curtain fixtures, sash locks and sash balances for all types of electric railway cars. There are also shown National lock washers for trucks, motors and track and Hipower nut locks for track.

* * *

The Rail Joint Company, spaces 350 to 357, has a full line of the well-known Wolhaupter, Continuous and Weber joints. The very large booth is fitted up for demonstrating the various kinds of joints, and for making the friends of the company comfortable. As is well known, the Continuous joint will be used on the track of the new subways in New York City.

* * *

The Railway Track Work Company is back in its old location at spaces 161 and 163, where it is showing its well-known reciprocating track grinder in operation. This machine is built in a rugged manner with the aid of the best materials and workmanship. A feature of merit in this machine is the facility with which it may be employed in removing corrugations on curves.

* * *

Space 611 used by the Watson-Stillman Company shows hydraulic machinery, including a 125-ton girder rail bender, a 3000-lb. telescopic motor-lift jack, a 20-ton wrecking jack with a removable claw and photographs of tools suitable for shop use. An interesting feature is the emergency car jack designed to meet the requirements of the Pennsylvania Public Service Commission law for use on city cars.

* * *

Although without an exhibit this year, W. J. Jeandron is attending the convention in his own interests, as United States agent of Le Carbone Company of Paris, France. He has recently returned from Europe and states that war conditions in Europe have in no way affected the production and shipment to this country of carbon brushes in ample quantities to take care of his extensive business in American railway and lighting industries.

* * *

A combination anti-slip and open-work type of car step tread is a new feature of the Universal Safety Tread Company's exhibit at space 568. The open-work rear of the tread has all its metal intersections locked, thus eliminating the possibility of springing open. The front part of the tread is composed of a homogeneous none-slipping mass, rather than of vertical steel ribs, so that wearing off of the surface does not in any way decrease its abrasiveness.

* * *

Among the newcomers in the electric railway field, yet well known to steam roads, is Edwin S. Woods & Company, in space 537. This company is exhibiting its anti-friction, flat-sided, ball-center bearing. This unique mechanical combination gives ample travel and two and one-half times more carrying capacity than the use of full-sized roller or ball bearings. A side-bearing with a support feature which takes lateral thrust when the car is riding on tangent track and provides a roller bearing on curves is also shown. Both of these devices result in an easier riding car and a saving in rail and wheel flange wear.

* * *

Drouvé "Anti-Pluvius" puttyless skylights are to be used on the Superior Avenue shops of the Cleveland (Ohio) City Railway. This, together with the Harvard Road Shop group, for which an additional order was also placed, makes a total of more than 50,000 sq. ft. on these buildings. In the Holyoke Street Railway new shops, now nearing completion at Holyoke, Mass., about 1000 lin. ft. of "Straight Push" sash operator has been installed. Other contracts now being finished are additional Drouvé skylights for the Boston Elevated Railway, Stone & Webster Engineering Corporation, H. M. Byllesby & Company, Chicago City Lines and an order for 10,000 sq. ft. for the new shops of the Springfield (Ohio) Railway.

* * *

Consolidated Car Fender Company, Providence, R. I., is using space 589 in the Annex to show its Type A and Type C extension fenders, the H. B. and the Providence life guard and the Mellen snow broom. Several important improvements were made in all of these equipments last year as described in the Oct. 15 issue of the Electric Railway Journal Daily last year. It is interesting to note the popularity of the H. B. life guard for city service. All the city surface cars in New York, Brooklyn, Philadelphia, Chicago, Buffalo and many other cities are equipped with these guards. More than 94,000 equipments are now in daily service in the United States, and more than 200 foreign systems are also equipped with H. B. guards.

* * *

Interest in track special work in the Cleveland Frog and Crossing Company's spaces 585 and 587, is centering on the new types of rail-bound, solid manganese center interurban frogs and switches. In this construction standard 80-pound A. S. C. E. rail is so formed and bolted to a solid manganese steel insert as to permit a very easy approach to a wheel flange bearing at the intersecting flangeways. The depth of the insert eliminates peening or cold rolling, and any of the parts are readily renewable in case failures occur. This company also is exhibiting for the first time the Cleveland motor-driven splice-bar off-setting machine with a range to meet practically any track condition. This machine is similar in principle to this company's well-known hand-power machine.

* * *

The Pyrene Manufacturing Company, space 215 Aquarium Court, has an exhibit designed to demonstrate not only the fire extinguishing properties of Pyrene but also its electrical non-conductivity. The former is demonstrated by means of a large 550-volt, 100-lamp arc which is broken with the liquid. The latter quality is shown by the operation of an electric motor submerged in Pyrene and by an incandescent lamp with all of its terminals submerged. An effective mechanical sign, duplicates of which are in operation all over the country, shows a man extinguishing an automobile fire. Among other exhibits are samples of the latest tamper-proof box for holding extinguishers, the latest types of brackets for attaching extinguishers to cars, and a complete assortment of the parts of the extinguisher.

* * *

The L. S. Brach Supply Company, at space 141, has on exhibition an automatic flagman for crossing protection and samples of the smaller products of the company. It also shows the Brach "Hydro-Ground" consisting of a number of metal bowls with perforated tops mounted on a stem, and designed to create a moist area for grounding. A lightning arrester and static discharger, together with various fittings, are shown in attractive form. A feature of particular interest is the track contact device, which was designed primarily for the control of the automatic flagman and which is also used for announcing trains, etc. It is operated by the depression of the rail under the weight of the car. The box rests on the ties and a finger hooks under the rail operating a switch through a train of levers. One hundred of the automatic flagmen are already out, some of which are on the Public Service Railway, the Scranton & Binghamton Railway, the Long Island Railroad (where it is used in connection with the signal system) and others.

In space 330 the Fonger Fender Company is demonstrating the reliability and effectiveness of the tip-tilting car fender. The claims for the fender are light projection, neat appearance, durable and substantial construction, light weight and adjustability for any type of car.

* * *

A new type 10-ft. air-brake compressor of a design distinctly new from those formerly shown is being exhibited this year in space 15 by the National Brake & Electric Company. This company is also showing a general line of apparatus for railway air-brake and industrial service, all of which is attracting many visitors.

* * *

The United States Wood Preserving Company has on exhibit at space 107 a sample block taken from a section of wood block pavement which was laid down fourteen years ago on Fremont street, Boston, and which now shows a wear of only ⅛ in. Another block, taken from Warren street, New York, shows a wear of only ¼ in. after eleven years of service.

* * *

The Prince-Groff Company, a newcomer at the convention, is featuring in spaces 384 and 385 an interesting line of drills, including power driven "Wedglock" track drills, hand-track drills and hand-signal drills. The exhibit also includes "Kwikgrip" pipe wrenches with straight jaws and the "Pressurlockd" water-gage system, complete with gage, valves, connections to boiler and lamp bracket.

* * *

Among the new things being exhibited in spaces 154 and 156, where the Schutte & Koerting Company is located, is an air washer and cooler for generator sets. In this air is drawn through a pair of spray nozzles to a set of baffle plates which serves to remove the moisture. This device is made for any size generator desired. This company is also showing for the first time its multiple jet condenser.

* * *

Valentine & Company, spaces 580 and 581, present the results of a number of tests of Valspar and other varnishes designed to show the qualities of the company's product. A large number of test samples are shown and one test is under way during the convention. Exhibits of the Valentine car painting systems, showing the results of the application of successive coats, and of enameled signals, form an interesting part of the display.

* * *

The Electric Railway Improvement Company, spaces 570 and 572, is showing a new oil furnace for melting copper used in the installation of rail bonds, negative feeders and return circuits. The apparatus is light and portable and is especially adapted for work on steam roads under electrification when electric power is not available. Any size bond or cable may be installed by this method, which gives the apparatus a very large range of usefulness.

* * *

Although the Morgan Crucible Company, Ltd., London and New York, has been in business in the United States for five years, it is making its first extensive exhibit at this convention. The booth in Machinery Hall is attractively decorated. One of the features of the exhibit is a very large piece of natural pure graphite dug out of one of the company's mines in Ceylon, India, and shipped direct from there for exhibit at this convention. A special display is made of EG3 electro-graphitic Battersea traction brushes; Morganite brushes for generators, copper-filled brushes for collector rings and Battersea screwless connectors. Gland packing graphite rings for the steam and boiler room are also exhibited.

* * *

The specialty exhibited by the Albert & J. M. Anderson Manufacturing Company in spaces 374 and 375 is the Lindall brush-holder, which has the following advantages: better commutation and reduced motor flashing, constant brush pressure, no pig-tails, ease of inspection and renewal and economy of maintenance. The company is also displaying an alligator jaw testing clamp for us in testing watt-hour meters, insulating sleeves made of Aetna insulation for covering incoming conduits, an Anderson-Little switch for controlling light and heating currents and giving a quick break at two points, and a lock type of disconnecting switch for high-tension compartments.

* * *

Richard Russell, Toronto, Canada, and Niagara Falls, N. Y., has an interesting exhibit in Machinery Hall. During the year he has made a number of improvements on his trigger-lock reversible controller fingers. The fingers are more pear-shaped than formerly, giving them a better contact surface. One part of the exhibit is a 35-K controller equipped with trigger-lock reversible controller fingers. The interchangeability of the fingers and the quickness with which they can be changed is shown. All the electric railways in Canada use these fingers on their controllers, and more than 400 roads in the United States are now employing them. Most of the business done is in repeat orders.

* * *

A new type, light-weight seat and a vertical wheel brake requiring minimum platform space make up the principal features of the St. Louis Car Company's exhibit in space 588. This seat is much lighter than former designs, the weight reduction being accomplished by the use of sheet-steel pressings. Extra seating space of 1 in. is also obtained by the use of an especially designed reversible mechanism which is three-prong with a self-setting feature and also provides a positive stop. In addition to the small amount of space occupied by the vertical wheel brake, this type avoids the danger to passengers when a set brake comes loose. At the same time, the diameter of the wheel and the transmission gearing give the motorman greater purchase and a flywheel action.

* * *

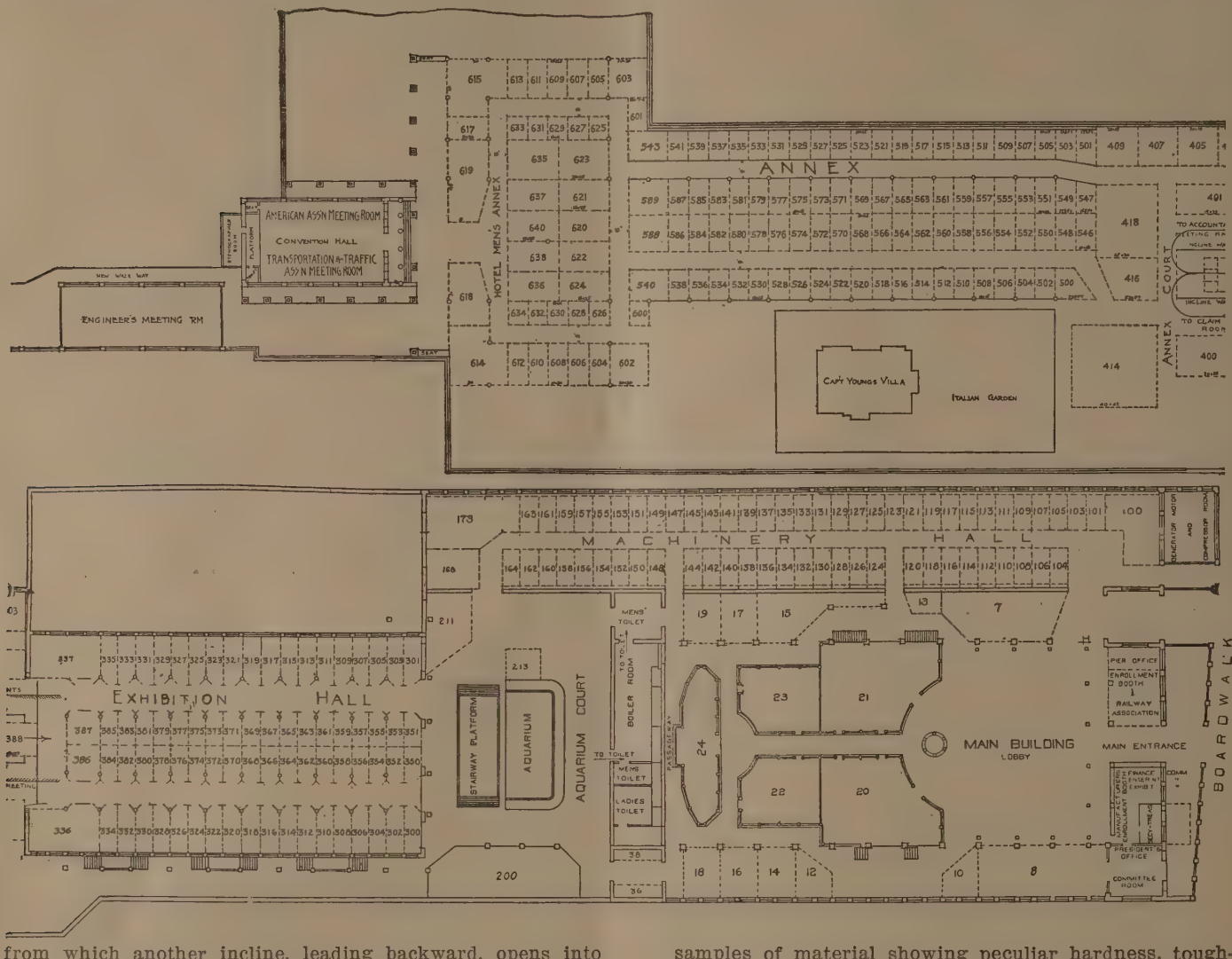
The Gold Car Heating & Lighting Company, spaces 306 and 308, has a working exhibit showing the operation of the thermo control for electrical heaters designed to economize current. The exhibit is designed to particularly attract attention to the ventilated porcelain cores of the heaters by means of which wire temperatures are kept down, and to the coils which are wound of Gold's standard non-corrosive wire. The Fahnestock clip connector is used on a number of heaters to permit the easy removal of units. For use on the older heaters a new ventilated porcelain core has been substituted for the enameled rods previously used. Samples of this are shown. Other exhibits include covers for the new 1200-volt heaters, designed primarily to protect the public and the Cyclone induction ventilator as used on the New York, Westchester & Boston Railroad, the Baltimore & Ohio Railroad and others.

* * *

S. K. F. ball bearings are exhibited at space 532 this year for the first time. This exhibit consists of a pair of 33-in. solid steel wheels and axle mounted on S. K. F. self-aligning ball bearings. The journal boxes are made of cast-steel and are designed for use on the Standard Type 0-50 Truck. The bearings are made in Sweden and are so designed that the two rows of balls run in a spherically-ground outer raceway. Two bearings are used in each journal; the outside bearing, while it has the same outside diameter as the inner bearing, is heavier, has larger balls, a slightly smaller bore, and in addition to taking its proportion of the radial load carries all of the thrust in one direction. These bearings have been successfully adopted in Europe on the journals of heavy railway cars and tramcars. The S. K. F. people are also showing an assortment of heavy bearings suitable for railway work, and several sizes of ball bearing shaft hangers for use in railway shops.

List of Exhibits

The exhibits at the American Electric Railway Association at Young's Pier are so arranged that a systematic trip can easily be made to see them all. The best route for a delegate to take is that leading to the right into Machinery Hall directly upon entrance from the Boardwalk. Here, ranged on the left and right sides respectively, will be found booths 104-164 and 100-163. Turning the corner then, past the aquarium on the left and booths 173-211 on the right, the delegate will find his way into the right hand aisle of Exhibition Hall, past booths 301-337 and 351-387. An incline at the end of this aisle leads into the Annex Court,



from which another incline, leading backward, opens into the Claim Hall and the Accountants' Hall. Going ahead from the first incline, however, the delegate will see exhibits 405-543 on his right and 547-589 on his left on the right-hand aisle of the Annex. Around the corner to the right from booth 543 in the Hotel Men's Annex, in booth 603, will be found a gentlemen's smoking and rest room. In the rear, right-hand corner in booth 614, is the ladies' reception and rest room. Turning to the left at this point, the delegate comes to the entrance on his right, which he may take in getting out to the Greek Temple, the home of the American Association, or farther out to the Engineering Hall. The exhibits, however, lead straight ahead, and with the first turn to the left the trip back on the other side of the pier is begun—past booths 612-602 and 634-626 in the Hotel Men's Annex. Booths 540-500 and 500-546 in the Annex, and booths 330-300 in Exhibition Hall. At this point the aquarium is passed on the other side and the delegate may wander down the side aisle of the Main Building past booths 18-2, or else first visit booths 24-20 in the center and 19-15 on the opposite side or vice versa, and thus find himself back at the main entrance from the Boardwalk.

Abrahams & Company, S., Philadelphia, Pa., space 323, Exhibition Hall. Uniforms. Represented by William Abrahams, Simon Abrahams, Louis A. Hirsch, Julius Weintraub.

Acme Supply Company, Chicago, Ill. Regal revolving curtain box, Crown and Gem pinch handle curtain fixtures, Kass safety step treads, duplex weather proof windows, car fittings and supplies, including full size metal doors and trims for New York Municipal subway cars. Represented by Stanley W. Midgeley, H. V. Morton, Mr. Munro.

Allen American Manganese Steel Company, Edgar, Chicago, Ill., space 500, Annex. Electric special ground gears and pinions of manganese steel for railway motors; also samples of material showing peculiar hardness, toughness and wearing quality of "Stag" brand manganese steel. Represented by Walter H. Evans, Walter S. McKee, W. G. Nichols.

Alloy Steel Forging Company, Pittsburgh, Pa., space 569, Annex. Forged manganese steel chafing plates, pedestal gibs, suspension horn wear plates, brake pins, locomotive spring hangers and draw-bar coupler yokes, steam shovel friction band strap, chain parts, woven manganese steel screen, rolled manganese steel T-rail. Represented by W. S. Potter.

American Brake Shoe & Foundry Company, Mahwah, N. J., space 416, Annex. A. E. R. A. Standard brake heads and brakeshoes. Represented by F. W. Sargent, E. B. Smith, E. L. Janes, C. P. Wright, A. G. Delaney.

American Car & Foundry Company, Chicago, Ill., space 619. Special cast iron chilled wheels. Represented by Messrs. Blewett, Eaton, Wilson, McDowell.

American Engineering Company, Philadelphia, Pa., space 12, main building. The Taylor stoker. Represented by E. G. Marble, general sales manager; M. Alpern, assistant sales manager; R. O'Shea, C. E. Harrison.

American Lock-Nut Company, Pullman, Chicago, Ill., space 512. Lock-nuts. Represented by Fred M. Bobo, H. W. Radcliffe.

American Mason Safety Tread Company, Lowell, Mass., space 538. Mason safety treads, Karbolith flooring,

Stanwood steps, ladder shoes. Represented by Henry C. King, president; Ralph C. Davidson.

American Railway Supply Company, New York, N. Y., space 526, Annex. Cap badges, coat convention badges, police shields, self-adjusting timetable and folder rack. Represented by Walter Chur.

American Steel & Wire Company, Chicago, Ill., spaces 558, 561. Rail bonds, electrical wires and cables, right-of-way fence on steel posts, four-spindle drill electrically operated, rail-bond testing apparatus, hydraulic compressor. Represented by B. H. Ryder, F. A. Keyes, C. S. Knight, R. C. Moeller, Henry Rose.

Anderson Manufacturing Company, Albert & J. M., Boston, Mass., spaces 374-375. Overhead line materials, rotary sand boxes, Lindell brushholders, motor-operated end cell switch, Anderson automatic time switches, contact rail insulators, special switches for railway service, etc. J. M. Anderson, A. E. Anderson, A. H. Burns, J. F. Stout, Ernst Woltmann, G. B. Crane, W. W. Hincher.

Atlas Railway Supply Company, Chicago, Ill., spaces 502-504. Atlas rail joints, Atlas compromise joints, Atlas, special joints, Atlas tie plates and braces, Atlas guard rail braces, Vixen rail planer, and a demonstration of a new track grinder. J. G. McMichael, Daniel Thomson.

Automatic Cashier Corporation, The, Norfolk, Va., space 525, Annex. Automatic cashier. Represented by J. F Hibner, E. J. Hibner, Paul Garrett.

Automatic Ventilator Company, New York, N. Y., space 317, Exhibition Hall. Ventilators for monitor and arch roof cars, self-lubricating and renewable trolley wheels, trolley harps and renewable contact springs. George H. Ford, Wm. J. Fleming, Jr., F. J. Hayez.

Auto Utilities Company, Chicago, Ill., space 316.

Bayonet Trolley Harp Company., Springfield Ohio, space 541, Annex. Trolley bases with detachable pole clamp, detachable trolley harps, Bayonet special trolley wheels, sleet cutters. Bayonet self-lubricating trolley axles. Represented by Messrs. Olinger and Garlough.

Bemis Car Truck Company, Springfield, Mass., space 503. Case-hardened brake pins, case-hardened bushings, trolley pins, manganese steel castings, Vim bronze bearings, brake-heads, brooms (wire and corn), etc. Represented by Warren L. Boyer, Theodore S. Adams, David L. Beaulieu.

Blake Car Step Works, Inc., The, Charlotte, N. C., space 600. Blake safety car step, for Interurban and steam railway coaches. Represented by John S. Blake, W. W. Watt and Fred D. Blake.

Brach Supply Company, L. S., New York, N. Y., space 141, Machinery Hall. Brach automatic flagman, Brach vacuum and non-air-gap lightning arresters. Hydro-ground cable boxes, track contacts and signal accessories, Solderall and Solderall torch. L. S. Brach, G. Gort.

J. G. Brill Company, The, Philadelphia, Pa., space 8, Main Building. Radiax El Truck, No. 76-E two-motor pivotal truck, solid forged side frames, center plates, wide-wing journal box, half-ball brake hangers, car seats, motormen's seats, twill-woven cane, lined and unlined. Represented by S. M. Curwen, J. W. Rawle, W. H. Heulings, Jr., G. M. Haskell, A. N. Hargrove, R. B. Liddell, J. E. Brill, F. L. Markham, H. A. Heulings, W. S. Adams, W. M. Smith, M. J. Oswald, C. J. McPherson, J. H. Ohlsson, D. B. Dean, G. H. Tontrup, E. Bronenkamp, C. F. Johnson, S. M. Wilson.

Brookfield Glass Company, New York, N. Y. Insulators. Represented by H. C. Law, Arthur Lockwood.

Buda Company, The, Chicago, Ill., space 311, Exhibition Building. Models of track special work, frogs, switches, crossings, etc., photographic illustrations of completely assembled intersection layouts. Represented by H. S. Evans, S. G. Llewellyn, R. B. Fisher, F. W. Marvel, George K. Reel.

Carnegie Steel Company, Pittsburgh, Pa., spaces 546 to 553 inclusive, Annex. Piece of street railway track, illustrating method of placing steel cross ties in concrete: Duquesne rail joints, Braddock insulated joints; heavy steel cross tie, same as those on which test is being made by Pennsylvania Railroad; rolled steel wheels for interurban and other street railway service; rolled steel gear blanks; finished gears; steel sheet piling. Represented by W. P. Siebert, L. C. Lustenberger, Robert Coe, N. B. Trist, T. W. Williams, W. W. Scott, Jr., N. M. Hench, H. P. Tiemann, L. W. Conroy, R. W. Steigerwalt.

Cheatham Electric Switching Device Company, Louisville, Ky., space 159. Automatic electric switching device, designed to operate switch points by motorman from his controller without having to stop car. Represented by E. S. Olmsted, J. D. Augustus.

Chicago Pneumatic Tool Company, Chicago, Ill., spaces 101-103-105. Duntley portable electric tools, consisting of portable drills, grinders, track drills, spike drivers, track grinders and portable pneumatic tools of the Boyer and Keller types. W. O. Duntley, Thomas Aldcorn, C. B. Coates, J. W. Smith, F. S. Eggleston.

Chicago Varnish Company, Chicago, Ill., spaces 574, 575. Examples of CeVe process finishes on wood and steel. Represented by Messrs. Bigelow, Gundrum, Buckman, Porter.

Cleveland Frog & Crossing Company, Cleveland, Ohio, spaces 585 and 587, Annex. Track special work and motor-driven splice offsetting machine. Represented by George Stanton, L. G. Parker.

Columbia Machine Works & Malleable Iron Company, Brooklyn, N. Y., space 620, Hotel Men's Annex. Automatic winding machines, standard armature and field coil winding machines, standard and renewable fuses, copper connection terminals, car replacers, brake handles, controller handles, trolley line material, knife-blade switches, bearings, commutators. Represented by J. G. Buehler, James Grady, W. R. Kerschner, M. R. Jarvis.

Consolidated Car Fender Company, Providence, R. I., space 589, Annex. Street car fenders and life guards. A. J. Thornley, George H. Hollingsworth, H. E. Oesterreich.

Consolidated Car-Heating Company, Albany, N. Y., space 22, Main building. Electric heaters and switches for 600-1800 volt operation, heater ventilating units, thermostatic control of car heaters, signal systems, highway crossing signals, gong ringers, emergency lighting relays, special jumper plugs and sockets, push-button switches, pneumatic and mechanical door operators, special relays and contactors, tilting heat deflectors, trap door operators. Represented by Thomas Farmer, Jr., C. C. Nuckols, H. L. Hawley, G. E. Oakley, W. S. Hammond, Jr., J. H. McElroy, C. A. Eggert, F. Avery.

Cooper Heater Company, The, Carlisle, Pa., space 325, Exhibition Hall. Forced ventilation hot-air car heaters and pressed-steel hot-water car heaters. Represented by W. Stuart, Caleb S. Brinton, Thomas MacDonald, Thomas Green, Jr.

Curtain Supply Company, The, Chicago, Ill., space 638, Hotel Men's Annex. Car curtains, ring curtain fixtures, Rex all-metal curtain rollers, curtain materials, Rex sash balances, Rex friction curtain rollers, etc. Represented by R. F. Hayes, Eastern manager; G. E. Fox, Eastern and Southern representative; F. M. Egolf, Southwestern representative.

Dayton Fare Recorder Company, The, Dayton, Ohio, spaces 386-387. Dayton fare recorder, Dayton registering fare boxes, Dayton combination fare-box recorders, Dayton special combination fare-box recorders for elevated and subway stations. Represented by Will I. Ohmer, P. J. Mitten, D. B. Whistler.

Joseph Dixon Crucible Company, Jersey City, N. J., space 16. Graphite products, including lubricating graphites, graphite grease, boiler graphite, silica graphite paint, crucibles, foundry facings, dynamo brushes, belt dressings, etc.; the products in a crude and finished state; also a set of gears which have run more than 300,000 miles with Dixon graphite wood grease only. H. W. Chase, W. M. Willitts, J. A. Condit, L. H. Snyder.

Drew Electric & Manufacturing Company, Indianapolis, Ind., space 315, Exhibition Hall. Overhead line material, car equipment and safety devices, including Samson trolley splicers and splicing ears, protective and reclaiming sleeves for iron poles, motorman's safety mirror, Samson pipe insulators, overhead switches, crossings, clinch ears, adjustable trolley crossings, section insulators, linemen's tools, high-tension insulators. Represented by James H. Drew.

G. Drouve Company, The, Bridgeport, Conn., space 607, Annex. Anti-pluvius puttyless skylights, straight-push sash operator, Lovell window operator (regular and dreadnought). Represented by William V. Dee, Earl H. Hauserman.

Duff Manufacturing Cimpany, Pittsburgh, Pa., space 637. Street car emergency jacks, genuine Barrett track and automatic lowering jacks, Duff high-speed ball-bearing screw jacks, Duff-Bethlehem hydraulic jacks. Represented by E. A. Johnson, C. A. Methfessel.

DuPont Fabrikoid Company, Wilmington, Del., space 307. Fabrikoid car window material, Fabrikoid car seat upholstery material. Represented by C. Hallock Silkman, H. W. Wivel.

Eclipse Railway Supply Company, Cleveland, Ohio, spaces 571-573, Annex. Eclipse life guard, Eclipse wheel guard, Acme fender, Eclipse trolley retriever. Represented by Ross Forward.

O. M. Edwards Company, Inc., The, Syracuse, N. Y., spaces 591, 521, Annex. Window fixtures, sash balances, metal sash, metal extension platform trap doors, shade rollers, padlocks. O. M. Edwards, W. A. LeBrun, E. F. Chaffee, C. H. Rockwell, T. P. O'Brian, W. C. Bradbury.

Elastic Car Waste Company, Philadelphia, Pa., space 576, Annex. Patented elastic car waste of carpet yarn interwoven with fine brass spring wire for journal boxes. Represented by Frank B. Birch, president, Arthur B. Birch, William S. J. Wetherill.

Electric Railway Improvement Company, Cleveland, Ohio, spaces 570-572, Annex. Electric weld rail-bonding car in operation, coal oil furnace for copper weld rail bonding, rail bonding apparatus. Represented by Stanton. Howatt, Schmid, Rinker, Huber.

Electric Railway Journal, New York, N. Y., space 7, Building No. 1. Reception booth and office of Convention Daily. On display and for distribution: copies of Convention Number, Convention Daily and regular weekly editions. Other publications of McGraw Publishing Company on display are: *Electrical World; Engineering Record; Metallurgical & Chemical Engineering; McGraw Electrical Directories* (Electric Railway and Lighting & Power editions); *McGraw Electric Railway Manual* (Annual Red Book); and *Electric Railway Dictionary.* Represented by Messrs. McGraw, Wilson, Henry, Kucera, Blake, Norris, Babtiste, Beard, Hunt, Gould, Kingsley, Jackson, Henley, Haas, MacMurray, Bruster, Grinnell, Schoch, Coburn, and Misses Vannett and Johnson.

Electric Service Supplies Company, Philadelphia, Pa., space 414, Annex. Keystone car destination signs, Garton-Daniels lightning arresters, Keystone truss pins, Locke insulators, Keystone triangle cross arms and fittings, Keystone trailer connectors, lamp guards, Never-Creep guy anchors, Peerless universal armature machines, Melo-Beam incandescent headlights, Keystone steel gear cases, Keystone motorman's seats, Samson spot cordage, Safety car lighting fixtures and other new electric railway specialties, most of it in actual operation. Represented by C. J. Mayer, A. H. Englund, J. W. Porter, J. V. E. Titus, W. A. Armstrong, Jr., W. J. Bryan, G. W. Cox, L. H. Pike, H. G. Lewis, J. R. McFarlin, T. F. McKenna, T. H. Henkle, F. C. Peck, G. E. Watts.

Electric Traction, Kenfield-Davis Publishing Company, Chicago, Ill., space 10. Reception booth. Represented by W. J. Field, H. E. Ross, H. J. Kenfield.

Electro-Mechanical Brake Company, West Bromwich, England, space 610. E.M.B. unbreakable jointless grid resistances for traction and industrial work; specimens of the equipments used by the London County Council, Birmingham, Adelaide and other street railways, as well as a typical resistance as used by the British Admiralty, iron and steel works, etc. The resistances will be shown on test. Represented by A. W. Maley.

Ellcon Company, The, New York, N. Y., spaces 536-538. Safety control interlocks, car height adjuster device, porcelain enameled pipes and fittings, switches, conduit fittings, Aero metal castings, Aero metal in sheet and cast form, ball-bearing door hangers. William Wampler.

Esterline Company, Indianapolis, Ind., space 318, Exhibition Hall. Golden Glow fog penetrating, non-dazzling railway headlights; locomotive headlights; marine and emergency wagon searchlights; Golden Glow mirrored glass reflectors; Esterline graphic efficiency recording instruments. W. McK. White, sales manager; F. O. Grayson, St. Louis, Mo.; E. R. Mason, New York, N. Y.

Federal Signal Company, Albany, N. Y., space 131, Machinery Hall. Automatic signals, a. c. and d. c. bottom post and top post types; three-position light signal; single-phase and polyphase relays; neutral, interlocking and polarized relays; track transformers; switch circuit controllers and switch indicator; reactance bonds, etc. J. T. Cade, J. W. Hackett, M. H. Loughridge, J. F. Kelly.

Flood & Conklin Company, Newark, N. J., space 18. Simplex system for finishing wooden and steel passenger equipment. Represented by L. Atwood Williams.

Fonger Fender Company, Chicago, Ill., space 330, Exhibition Hall. Fonger tip-tilting automatic fender mounted on a truck on wheels to be pushed against a live person every few minutes to show how it will pick him up automatically without the slightest injury. Represented by Robert V. Fonger, Malcolm W. Fonger.

Galena-Signal Oil Company, Franklin, Pa., space 24, Main building. No exhibit, but will have a reception and tea room. Represented by C. C. Steinbrenner, vice-president; E. H. Baker, second vice-president; G. A. Barnes, assistant manager electric railway department; E. V. Sedgwick, C. H. Thomas, W. A. Trubee, L. R. Speare, C. A. Record, L. J. Drake, Jr., W. A. McWhorter, E. G. Beatty, R. H. Craig, A. O. Fletcher, J. C. Glair, A. Green, W. H. Lee, W. A. Love, George J. Smith, W. O. Stieff, J. E. Southwell, W. C. West, D. A. J. Sullivan, H. C. Mason, W. H. Pape.

General Electric Company, Schenectady, N. Y., space 20, Main building. Six types of commutating pole motors, comprising; G.E.-239 rated 1200-2400 volts, 150 hp G.E.-240 motor, rated 600-1200 volts, 80 hp G.E.-242 motor, rated 65 hp at 600 volts and 55 hp at 500 volts, G.E.-243, 600-volt motor, G.E.-248 motor rated 160 hp at 600 volts, G.E.-247 motor rated 35 hp at 600 volts and 30 hp at 500 volts; M.K. control for operating four 30 hp motors; four types of K controllers including the new K-201; combined straight and automatic air brake equipment with CP-27-B compressor; CP-25-C, 600 volt new light weight compressor; line materials, part as installed in service; display boards of air brake details, circuit breakers, fuse boxes, rheostats, etc.; forged steel treated gears and cast-steel split and solid gears with forged steel treated pinions; sheet-steel gear cases; complete line of headlights; exhibit of modern car lighting including boron car lighting regulator outfit and boron filament lamp, tungsten registers, etc.; lantern slide exhibition showing progress in electric railway field during the past year. Represented by J. G. Barry, W. B. Potter, F. E. Case, G. H. Hill, E. D. Priest, C. E. Eveleth, J. F. Layng, W. T. Stanton, E. P. Waller, W. G. Carey, F. H. Gale, W. J. Clark, S. W. Trawick, C. B. Keyes, W. H. Sigourney, H. C. Grier, C. C. Pierce, C. E. Sprague, R. E. Moore, R. P. H. Staub, W. A. Woolford, E. H. Ginn, H. L. Monroe, C. A. Ives, J. A. Cranston, O. E. Turner, L. W. Shugg.

General Railway Signal Company, Rochester, N. Y., spaces 604, 606. Photographic record of block signal installations using continuous track circuit with both light and semaphore type signals. Represented by H. M. Sperry, S. M. Day, H. W. Lucia, W. W. Coleman.

General Vehicle Company, Inc., Long Island City, N. Y., space 603. Two-ton emergency wagon (electric), one-ton industrial truck (electric). Represented by F. Nelson Carle, F. B. Fink, J. R. C. Armstrong.

Globe Ticket Company, Philadelphia, Pa., spaces 380, 382. Transfers, cash fare receipts, tickets in book form, strips, rolls for city and interurban electric railways. Pope patent p. m. coupon transfers, ticket punches. Represented by W. C. Pope, P. C. Snow, R. C. Osman, E. Elliott, C. Elliott, C. W. Zieber.

Gold Car Heating & Lighting Company, New York, N. Y., spaces 306, 308, Exhibition Hall. Ventilated core electric heaters, thermostatic control for electric heaters, electric thermostatic control for steam heating, Cyclone ventilators. Represented by F. H. Smith, A. B. Strange, F. T. Kitchen, F. O. Bailey.

Goldschmidt Thermit Company, New York, N. Y., spaces 114, 116, 118, 120, 13, Machinery Hall and Main Building. Improved apparatus for making Thermit insert fully welded rail joints from start to finish; sample welds of rail joints, crank shafts and other sections; Goldschmidt thermit rail grinder with power derailing feature in operation on track; a full line of metals and alloys free from carbon and thermit pipe welding materials. Wm. C. Cuntz, general manager; F. W. Cohen, chief engineer; W. R. Hulbert, sales manager; H. S. Mann, H. D. Kelly, J. G. McCarty, William Aldrich.

Griffin Wheel Company, Chicago, Ill., spaces 143, 145, 147, 149, Machinery Hall. Chilled iron car wheels, F. C. S. wheels for city and interurban service. Represented by A. A. Hale, H. N. Scott, A. W. Brown, W. A. Bennett.

Hale & Kilburn Company, Philadelphia, Pa., spaces 407, 409, Annex. Pressed steel Walkover seats for city and interurban cars; steel interior car finish; steel integral window construction; steel car doors, mouldings and other pressings for steel cars. Parlor car chairs; rattan seat covering; 40 ft. section of steel car interior, complete from floor to roof equipped with Walkover steel seats as supplied for every first-class steel passenger car used in the United States. Represented by A. F. Old, C. W. Laskay, R. H. Pilson, F. C. Edson, F. R. Robb, J. K. Hoffman, I. Lubersky, W. F. LaBonta.

Harrison Safety Boiler Works, Philadelphia, Pa., spaces 158, 160, Machinery Hall. The Cochrane metering heater, Cochrane precision meter, Sorge-Cochrane hot process water softening system, Cochrane multifort safety exhaust outlet valve, Cochrane multifort flow valve, Cochrane steam stack and cut-out valve heater and receiver, Cochrane steam and oil separators. Represented by H. E. Libson, J. Russell Hibbs,

Hauck Manufacturing Company, Brooklyn, N. Y., space 200, Aquarium Court. Demonstrating portable oil burners for steel car repairs, kerosene blow torches, lead, babbitt

and zinc melting furnaces, oil rivet forges, kerosene bonding torches, furnace burners, tire heaters, brazing outfits, kerosene burners for taking up center plates, portable heaters for straightening and bending rails, preheating torches for use with oxy-acetylene and electric welding machines, paint burners and linemen's torches. Represented by George P. Kittel, A. Busch Hauck.

Heywood Brothers & Wakefield Company, Wakefield, Mass., space 566, Annex. Railway car seats with pressed steel features; reed parlor-car chairs, canvas-lined rattan car seat webbing. Represented by Bertram Berry, Scot Wade, E. C. Lang.

Hubbard & Company, Pittsburgh, Pa., space 618. Hotel Men's Annex. Pole line hardware, Peirce brackets, Bo-Arrow arms, channel-iron arms, angle-iron arms, forged steel high-tension insulator pins, steel poles, anchor braces, drop forgings, construction tools and shovels, Hunt nut locks. Represented by C. L. Peirce, Jr., J. A. McLaughlin, Jr., Richard M. Kerschner.

Hunter Illuminated Car Sign Company, Flushing, N. Y., spaces 36, 38. Destination car signs. Represented by Lytle J. Hunter, Fenley Hunter, Gale Hunter, Harry Reisiger.

Independent Lamp & Wire Company, Inc., New York, N. Y., space 527, Annex. Salamander Asbestos insulated magnet wire, fireproof armature and field coils, asbestos tape. Represented by R. Bingham Dana, secretary, Frank A. Duff, superintendent coil department.

Index Visible, Inc., New York, N. Y., space 523, Annex. Visible card index files and systems. Represented by LeRoy M. Wightman.

Indianapolis Switch & Frog Company, Springfield, Ohio, space 173. Manganese frogs and track work; continuous railway crossings; Indianapolis portable electric track welder, Indianapolis portable electric track grinder, track drills, electric welded joints, electric welded steel tie construction. Represented by E. C. Price, W. H. Thomas, H. H. Murray, J. A. Foulks.

International Register Company, Chicago, Ill., spaces 300, 302, 304. Electrically-operated station coin register, standard coin register and fare box, standard International single and double registers, car fittings, Heeren enamel badges, International conductors' punches. Represented by A. H. Woodward, president; John Benham, vice-president.

International Steel Tie Company, Cleveland, Ohio, space 148, Machinery Hall. Steel crossing substructure with crossing section fastened in place, insulated steel tie for open track with rail fastened in place, steel plate tie with rail fastened in place. Represented by William P. Day, J. J. O'Donnell, L. C. Shank.

Jennison-Wright Company, Toledo, Ohio, space 110, Machinery Hall. Kreolite lug wood block track paving, Kreolite Hex-wood block factory shop floors, creosoted ties, cross arms, cross-arm pins, creosoted structural timbers. Represented by H. G. Jennison, F. W. Cherrington, L. P. Drinker.

J. N. Johns Manufacturing Company, New York, N. Y., space 371, Exhibition Hall. Pivot journal bearings and wedges, standard journal bearings and wedges, check plates guaranteed type, Flower brush holders, air brakes and controller handles with steel tube bushings, steel tube bushings for air brake and controller handles and stems, replaceable center trolley wheels, general line of castings brass, bronze and malleable, babbitt metal three grades, Col-R-01 car curtain and hand strap renewer, rub-on varnish cane seat preserver. Represented by F. W. Roth, D. B. Flower.

H. W. Johns-Manville Company, New York, N. Y., space 336. Overhead line material, molded insulation, ebony asbestos wood for switchboards, fiber conduit, Noark protective devices, including boxes, fuses, cut-outs and accessories, hard fiber tubing and sheets, expander rings, Niagrite cable wrapping, friction tape and splicing compound, "J-M" sand hose, electric car heaters, rail bonds, asbestos roofing, pipe covering and packing. Represented by J. W. Perry, general manager electric department; S. G. Meek, assistant manager electric department; J. H. McManus, New York, N. Y.; H. M. Voorhis, Philadelphia, Pa.; E. B. Hatch, president The Johns-Pratt Company, Hartford, Conn.; R. C. Buell, secretary The Johns-Pratt Company, Hartford, Conn.; George Christensen, New York, N. Y.

Johnson Fare Box Company, Chicago, Ill., spaces 320, 322, 324, Exhibition Hall. Johnson standard fare box, Johnson registering fare box with penny lock-up. Johnson registering fare box with penny lock-up and trip cyclometer, Johnson registering fare box with automatic ticket cancelling and counting device, Johnson automatically operated examination top and registering fare box designed for elevated and subway stations. Represented by C. H. Birdsall, W. P. Butler, J. M. Johnson, H. J. Baur.

Kerite Insulated Wire & Cable Company, New York, N. Y., spaces 130, 132, Machinery Hall. Kerite insulated wires and cables and insulating tape. Represented by Major A. Ames, P. W. Miller, J. Warren Young.

Laconia Car Company, Boston, Mass., space opposite entrance to Pier. Center-entrance car, length 33 ft. over buffers, seats forty-four passengers, weight completely equipped but 500 lb. per seated passenger, being lightest motor car yet shown. Model shown inside the car to illustrate the non-oscillating features. Represented by Cornell S. Hawley, J. E. Johnson, Peter M. Kling, E. J. Fitzgerald.

Lorain Steel Company, Johnstown, Pa., space 418. Track special work, samples of girder, guard and high T-rails including the new standard A. E. R. A. sections, electrically welded joints. Represented by H. C. Evans, New York, N. Y.; John A. Stacey, New York, N. Y.; E. M. Noonan, New York, N. Y.; A. S. Littlefield, Chicago, Ill.; S. P. McGough, Chicago, Ill.; A. L. Verner, Cleveland, Ohio; W. W. Kingston, Atlanta, Ga.; J. Thomas Moore, Atlanta, Ga.; Staats J. Cotsworth, Philadelphia, Pa.; Joseph MacCarroll, Jr., Philadelphia, Pa.; H. L. Gleeson, Pittsburgh, Pa.; and H. C. Stiff, George W. Reese, Edward Ott, James E. Decker, William Lynam, S. C. Weeks, W. Milt Brown, Carroll Burton, E. B. Entwisle, H. F. A. Kleinschmidt, P. M. Boyd, Johnstown, Pa.

Lord Manufacturing Company, Brooklyn, N. Y., space 577. Lord differential staffless brake, Giant perfected brake, Earll retriever, Earll catcher, Sterling trolley base, Sterling sander, Lord screenless air cleaner, Abacot static discharger, Hydroground, Sterling Fender, Sterling and Rhode Island wheelguards, Sterling ticket punches. Represented by E. A. Lightner, secretary and sales manager; L. W. Horne, chief engineer.

Lutz-Webster Engineering Company, Inc., Philadelphia, Pa., space 509. Lutz compression tools, consisting of compression wrench, compression ratchet, one-piece Ratchet, self-feed "Old Man" or drilling post with solid or full swivel arms, nut and bolt sockets and extension sockets, Lutz adjustable watertight floor box. Represented by W. H. Lutz, Sam Mason.

McGraw Publishing Company, Inc., New York, N. Y. (See Electric Railway Journal.)

McQuay-Norris Manufacturing Company, St. Louis, Mo., space 319, Exhibition Hall. "Leak-Proof" piston head packing rings. Represented by W. K. Norris, E. H. Hill, H. P. Marsh.

McRae's Blue Book Company, Chicago, Ill., space 10 B, Main building. *McRae's Blue Book*, with which is consolidated *The Railway Supply Index*. Represented by A. Smith, New York.

Mark Manufacturing Company, Chicago, Ill., space 617, Annex. Mark cold-drawn steel union. Represented by B. G. Calloway, J. K. Saville.

Maryland Steel Company, Philadelphia, Pa., space 23. See notice under the Pennsylvania Steel Company. Represented by Messrs. Jay, Tackaberry, Clark, Belknap, Gillispie, Davis, Balsich, Vickery, Henderson, Alden.

Midvale Steel Company, Nicetown, Philadelphia, Pa., space 640, Hotel Men's Building. Rolled-steel wheels, steel-tired wheels, axles. Represented by H. M. Deemer, D. V. Foster, W. S. Edger, A. E. Goodhue, T. W. Illingworth, Thomas Price, E. F. Berger.

Morgan Crucible Company, Ltd., New York, N. Y., spaces 104, 106, Machinery Hall. Morganite and Battersea carbon brushes. Represented by H. W. Knott, E. F. Dickieson, Jr., T. U. Franklin, H. W. Gudmens.

Nachod Signal Company, Inc., New York, N. Y., space 124, Machinery Hall. Track model of single track disk signals, single-track light signal, highway crossing bell with flashing lights, high-voltage relays, high-speed trolley contactors, automatic headway recorders. Represented by Messrs. Nachod, Stone, Knerr, Guthorn.

National Brake Company, Buffalo, N. Y., spaces 368, 369, Exhibition Hall. Peacock improved brakes, Peacock brakes, Ackley adjustable brakes, Tiger brakes, accessories. Represented by Frank D. Miller, W. D. Brewster.

National Brake & Electric Company, Milwaukee, Wis., space 15, Main Building. National air brake compressors of the direct suspended type, new National low-type air brake compressor and a complete line of automatic governors and motorman's valves, "3VS" motor-driven compressor for industrial and shop service, together with other types of both stationary and portable compressors with special automatic controlling system for alternating current. Various types of belt-driven compressors.

National Car Wheel Company, Pittsburgh, Pa., spaces 578, 579, Annex. Cast-iron wheels of Star special quality and special design for electric railway service. Represented by John Howard Yardley, vice-president; E. H. Chapin, J. F. Weisbrod, H. E. McClumpha, J. D. Cunningham.

National Lock Washer Company, The, Newark, N. J., space 539, Annex. Models of car curtains, curtain fixtures, window fixtures, National lock washers, Hipower nut locks. Represented by F. B. Archibald, R. F. Horsey, J. H. Horn.

National Tube Company, Pittsburgh, Pa., spaces 554, 555, 556, 557. "National" tubular street poles; short sections of "National" tubular street poles with windows, curtained to show construction of joints; Shelby seamless trolley poles machined to show construction; trolley pole testing machine; one 17-ft. length of National casing, telescoped into three thicknesses, also a 2-ft. length machined to show telescoping; Shelby table top made from hundreds of pieces of Shelby tubing; pair of andirons showing in actual material and line of process of the making of Shelby seamless tubing from billet to finished tube; Kewanee unions, N. T. C. regrinding valves and Kewanee specialties. Represented by L. F. Hamilton, W. S. Bitting, W. A. Phillis and others.

Naugle Pole & Tie Company, Chicago, Ill., spaces 332-334, Exhibition Hall. Cedar ties in actual service from ten to twenty-nine years; sections of poles in service for twenty years; sections of poles treated with a hot preservative by Naugle open tank method; sections of new cedar ties and poles. Represented by L. E. Morier, A. T. Naugle.

Nelson Valve Company, Chestnut Hill, Philadelphia, Pa., space 126, Machinery Hall. An 18-in. steel gate valve for superheated steam; steel throttle valves for superheated steam; bronze gate, globe, angle and check valves; iron body gate, globe, angle and check valves; automatic non-return stop check valves; balanced control valves; Nelson-Erwood swing gate valve. Represented by H. C. Baynard.

New York Switch & Crossing Company, Hoboken, N. J., spaces 562, 563, Annex. Improved type pinless, big heel tongue switch with manganese bed and tongue and universal spring attachment, reinforced switch tongue, solid manganese tongue switch with anti-straddle attachment, girder rail mate with manganese insert, hard center girder rail frog. Represented by H. R. Sherman, C. L. Wood, E. S. Fassett, D. R. Payne.

Nungesser Carbon & Battery Company, The, Cleveland, Ohio, space 513, Annex. Carbon, graphite and metal brushes. Represented by Hibbard S. Greene, Warner Jones, E. C. Hastings.

Nuttall Company, The R. D., Pittsburgh, Pa., spaces 140, 142, 144, Building No. 1. Complete line of motor gears and pinions, and current collecting devices, including pantographs, for street railway, interurban and trunk line multiple unit cars and electric locomotives; electric furnace with quenching baths in which steel will be treated and a thorough demonstration given of the methods of manufacturing gears and pinions; machine for breaking and testing pieces; new abrasive testing machine for demonstrating the resistance to wear of the different types of gears; 24-in. tooth carbonized and etched to show relation between the depth of the case and core of a case-hardened gear; Metcalfe test showing evolution in production of case-hardened gears; also a trolley in which the spring leverage is balanced to give minimum wire pressure when the pole is in horizontal position while the maximum wire pressure occurs at about 60 deg. angle from the horizontal. Represented by F. A. Estep, president; W. L. Allen, commercial manager; L. H. Keim, mechanical engineer.

Ohio Brass Company, Mansfield, Ohio, spaces 358 to 365 inclusive. In operation: Tomlinson couplers, O-B air sander system, O-B car lighting regulator, O-B trolley bases, retrievers and catchers, O-B electric car signal system, Melobeam headlights, rail bond apparatus and test of insulation. On display: O-B trolley guard, O-B catenary material, O-B porcelain insulators, O-B overhead trolley fixtures, O-B third-rail insulators, etc. Represented by C. K. King, A. L. Wilkinson, E. F. Wickwire, C. C. Beck, J. R. Brown, A. L. Price, G. H. Bolus, W. C. Starkey, J. E. Slimp, N. M. Garland, G. W. Cooper, G. A. Kroener, Nathan Shute, P. A. Hinds, W. H. Bloss, G. E. Willis, F. A. Strail, C. H. Tomlinson.

Ohmer Fare Register Company, Dayton, Ohio, spaces 301, 303, 305. Indicating recording and printing fare registers for registering from one up to sixty classifications; two types of cash totalizing registers for city service; new Universal register for interurban service, covering from 1 cent in multiples of cents to $10; new Safe Deposit fare box; model registering gate. Represented by John F. Ohmer, Grank G. Colby, J. H. Stedman, C. W. Ketteman, John F. Ohmer, Jr., C. V. Funk, E. H. Chapin, E. R. Diehl.

Okonite Company, The, New York, N. Y., space 168. Okonite insulated wires and cables (including steel taped and steel braided) for all conditions of service, Okonite insulating tape, Manson tape, Candee potheads, etc. Represented by W. L. Candee, F. J. White, W. M. Candee, L. G. Martin, W. T. Kyle, R. Mace.

Pantasote Company, The, New York, N. Y., space 400. Agasote headlining, wainscoting, exterior and interior trim, flooring, Pantasote upholstery material, Pantasote car curtain material. Represented by John M. High, William A. Lake, William Anderson.

Penn Metal Company, Boston, Mass., space 108. "Penco" improved smooth bottom culvert, "Penco" "Nestite" wire-bound culvert, "Penco" "Nobolt" flat bottom culvert or railway drain, "Colonial" all-round corrugated culvert, "Penco" metal shingles, "Penco" "Lox-on" tile. Represented by L. J. Rouleau.

Pennsylvania Steel Company, The, Philadelphia, Pa., space 23. Street railway special work, Hook heel tongue switches, double connected tongue switches for MCB wheels, rapid renewable hard center frog, New Century switch stands, main line switch stands, tensile tests Mayari bolts, vibratory tests Mayari bolt steel, solid manard crossing interior joint, Mayari shovels. Represented by Messrs. Jay, Tackaberry, Clark, Belknap, Gillispie, Davis, Salsich, Vickery, Henderson, Alden.

Pittsburgh Steel Company, Pittsburgh, Pa., spaces 162, 164. Railroad fencing, galvanized barb wire, wire nails, plain galvanized wire, etc. Represented by M. E. Johnson, assistant general manager of sales; George W. Jones, assistant manager New York office; E. Sidney Lewis, special sales agent.

Prepayment Car Sales Company, New York, N. Y., space 114. Pneumatically and electrically-operated door mechanism, coasting relays, signal and safety devices, manually-operated door and step mechanism, line switch circuit-breakers and contactors for safety devices, etc. Represented by Duncan McDonald, chairman board of directors; Thomas W. Casey, president; A. H. Englund, vice-president; Harold Rowntree, treasurer; P. R. Forman, chief engineer, and Willard A. Cockley, Thomas H. Henkle, Nelson P. Hall, J. W. Porter, M. A. Berg, special representatives.

Prest-O-Lite Company, Inc., Indianapolis, Ind., space 543, Annex. Prest-O-Oxy-acetylene welding and cutting equipment and all accessories; specimens of actual welding as applied to electric railway repair shop practice; specimens of bonded rails made by process; flare lamps; demonstrations of welding and cutting. Represented by H. Sidney Smith, Stanley D. Winger, C. R. Sutton.

Prince-Groff Company, New York, N. Y., spaces 384-385, Exhibition Hall. "Wedglok" track drilling systems, "Pressurlokd" water gage systems, "Kwikgrip" pipe wrenches. Represented by Sherman W. Prince, Clarence B. Groff, Harold Prince, Dwight Prince.

Pyrene Manufacturing Company, New York, N. Y., space 215, opposite aquarium. Approved Pyrene fire extinguishers, bracket for attaching to cars, tamper proof boxes for holding extinguisher, demonstrations on electric arcs daily and various other demonstrations of the non-conductivity of Pyrene liquid. Represented by E. L. Krut, J. P. Maloney, O. E. Meske.

Rail Joint Company, The, New York, N. Y., spaces 350 to 357 inclusive, Exhibition Hall. Types of T, high T, girder and compromise joints manufactured for practically every section of rail rolled. Represented by L. F. Braine, V. C. Armstrong, J. A. Greer, E. A. Condit, Jr., R. R. Seward, McLeod Thomson, Alexander Chapman, W. A. Chapman, J. C. Barr.

Railway Improvement Company, New York, N. Y., spaces 584, 506, Annex. Coasting recorders, terminal clocks, current clocks, meters, sanitary strap covers, anti-climbers. Represented by Andrew J. Pizzini, W. O. Wade, E. B. McKinney, C. W. Hall, S. Clark Morrell.

Railway & Industrial Engineering Company, Greensburg, Pa., space 609, Annex. Burke horn gap switches, lightning arresters, choke coils, and fuses for all voltages from 11,000 to 66,000; suspension type 6600-volt lightning arresters; T. E. line clips; commutator slotting tools; photographs and drawings showing installations and applications of Burke equipment; in space outside the Annex near the engineering meeting room outdoor transformer substation and T. E. lattice steel pole. Represented by L. C. Hart, G. N. Lemmon, W. Barnes, Jr.

Railway Materials Company, Chicago, Ill., space 534. Samples of brakeshoes and overhead trolley switch.

Railway Roller Bearing Company, Syracuse, N. Y., space 134, Machinery Hall. Rollway journal boxes, motor bearings, car wheels. Represented by Raymond H. Carhart, John W. Hulburt.

Railway Track-work Company, Philadelphia, Pa., spaces 161, 163, Machinery Hall. Track grinding machinery, reciprocating track grinder, unit design flexible shafting. Represented by William D. Gherky, William B. Goodall, Anthony M. Nardini.

Railway Utility Company, Chicago, Ill., spaces 372, 373. Ventilators and ventilating systems, thermostats. Represented by William J. Pine, Lee P. Haynes, James H. Denton, Frank O. Grayson, George E. Pratt.

Roebling's Sons Company, John A., Trenton, N. J., spaces 17, 19, Main Building. Samples of Roebling wire products including bare wire, iron, steel and copper wire, wire rope and fittings, Alligator wrenches, wire cloth and netting, factory-made car cables and insulated wire and cables for every purpose. Represented by F. J. Newbury, G. W. Swan, D. Foster Ivens, F. J. Whelan, W. L. Doyle, George I. Gheen, C. F. Atlee, J. E. Nolan, A. B. Conover, T. N. Hall, J. W. Whelan, A. V. Errickson.

Rooke Automatic Register Company, Providence, R. I., space 321, Machinery Hall. Rooke automatic fare collector (hand-held type) in capacities to receive and register coins of various denominations and tickets. Represented by George F. Rooke, Jilson J. Coleman, R. S. Rooke.

SKF Ball Bearing Company, New York, N. Y., space 532. Railway axle on wheels with ball bearing journal boxes in operation, assortment of bearings. Represented by H. E. Walker, H. H. Gildner, F. H. Poor.

St. Louis Car Company, St. Louis, Mo., space 588. Seats, rattan for car seating, vertical wheel brakes, illustrations and models of latest steel and semi-steel car designs. Represented by Edwin B. Meissner, Nic Le Grand, George L. Kippenberger, W. L. Alt.

St. Louis Steel Foundry Company, St. Louis, Mo., space 14, Main Building. Manganese steel tadpole switches and parts, manganese steel special U-section crossings. Represented by J. H. Steedman, vice-president; E. S. Harrison, sales engineer.

Sattley Manufacturing Company, Detroit, Mich, spaces 378, 379. One Type B coin-sorting, counting and packaging machine, one Type E coin-counting and packaging machine, one Type F coin-counting and packaging machine, two "Coinometers." Represented by F. L. Sattley, F. S. Strattan, E. C. Malo, M. W. Van Husan.

Sauvage-Ward Brake Company, Inc., New York, N. Y., space 501, Annex. Two types of brake automatic slack adjusters; special brake adjusting bar; also demonstration of adjusters in service on Atlantic City & Shore Railway, as at South Carolina Avenue and Boardwalk a car will be jacked up with truck pulled out to permit ready inspection. Represented by Frank D. Ward, M. E., vice-president; George P. Smith, secretary; H. M. Weaver, Eastern traveling rep.; B. B. Ringo, traveling engineer.

Schutte & Koerting Company, Philadelphia, Pa., spaces 154, 156, Machinery Hall. Valves, jets and special apparatus such as engine stops, trip throttle valves in operation; and boiler non-return valves, and reducing valves; steam jet syphon, injectors, blowers and exhausters, multi-jet condenser and air washer (for generator sets) in operation; spray cooling nozzles and oil separator, etc. Represented by J. J. Gessleman, in charge; G. Heinemann, P. W. Knauf, T. H. Johnson.

Seymour Portable Rail Grinder, Lowell, Mass., space 138, Machinery Hall. Seymour portable rail grinder. Represented by E. P. Seymour.

Simmen Automatic Railway Signal Company, Buffalo, N. Y., spaces 153, 155, Machinery Hall. Speed control apparatus for automatically controlling the speed of trains; dispatcher's table for controlling signals in cabs of moving trains and for making automatic record of the movement of all trains on the division equipped; movable car showing operation of cab signal and signal shoe on third-rail. Represented by P. J. Simmen, L. Ringer, E. Moore, C. E. Chatfield.

Simmons-Boardman Publishing Company, New York, N. Y., space 10-A, Main Building. *Railway Age Gazette, Railway Age Gazette*, mechanical edition, *The Signal Engineer*. Represented by Henry Lee, C. R. Mills, George L. Fowler.

Smith Heater Company, The, Peter, Detroit, Mich., spaces 376, 377, Exhibition Hall. No. 1-S Peter Smith forced ventilation magazine hot air heater, No. 2-P Peter Smith forced ventilation hot air heater, No. 3-P Peter Smith forced ventilation hot air heater. Represented by Daniel W. Smith, president; Elmer J. Smith, vice-president and general manager; M. J. Phelan, secretary; W. E. Hinmon, Western sales manager; W. M. McKee, Eastern sales manager.

Speer Carbon Company, St. Marys, Pa., space 8-A, Main building. Carbon and metal brushes for railway motors and generators. Represented by John S. Speer, Charles Lyon.

Standard Corporation, Philadelphia, Pa., space 10-C, Main building. Lefax engineers' loose-leaf pocket book, self-indexing reference library, condensed catalog file, Lefax filing boxes, blank sheets, traveling case, etc. Represented by J. C. Parker, William C. Wells, Jr.

Standard Paint Company, New York, N. Y., space 507, Annex. P & B insulating varnishes and compounds, "Imp" cement floor finishes, preservative paints, "Amiwud" wall board, prepared roofings and waterproofing compounds. Represented by C. E. Smith, J. H. Thomas, W. S. Noble.

Standard Underground Cable Company, Pittsburgh, Pa., space 388, Exposition Hall. Bare and insulated electric wires and cables of all kinds, cable terminals for indoor and outdoor service, cable junction boxes, joints and joining material and other cable accessories. Represented by C. J. Marsh, F. O. Hoyt, R. S. Hopkins, New York; Edward Kerschner, R. M. Hirst, Philadelphia; J. H. Lytle, J. C. Bowman, Pittsburgh.

Star Brass Works, Kalamazoo, Mich., space 506, Annex. Kalamazoo trolley wheels and harps. Represented by O. P. Johnson.

Sterling Fare Register Company, New Haven, Conn., space 328, Exhibition Hall. Fare registers, register fittings, fare boxes, trolley retrievers, trolley catchers, trolley wheels, conductors' punches. Represented by Frank B. Kennedy, Charles E. Gierding.

Sterling Varnish Company, Pittsburgh, Pa., space 567, Annex. Insulating varnishes and impregnating compounds, structural steel paints. Represented by J. H. Shugg, W. V. Whitfield, Alvin S. King.

Street Railway Signal Company, Inc., Philadelphia, Pa., spaces 117, 119. Automatic signals for single-track facing protection, and allowing following movements; automatic signals for rear and double-track protection. Represented by F. W. Kulicke, H. R. Stadelman, W. V. Moon.

Taylor Electric Truck Company, Troy, N. Y., spaces 109, 111, 113, 115, Machinery Hall. New Taylor maximum traction single motor truck for city and suburban service; Taylor M.C.B. triple spring truck for high-speed interurban service; Taylor L.B. double truck with inside-hung brakes for city and interurban service; Taylor extra heavy non-teetering single truck 8 ft. wheelbase for heavy long single truck vestibule car bodies; also a full line of elliptic and coil springs for any type and make of truck and T. M. C. steel-tired wheels. Represented by John Taylor, president; G. A. Tupper, superintendent; Walter E. Taylor, assistant superintendent.

Templeton, Kenly & Co., Ltd., Chicago, Ill., space 636. Simplex emergency jacks, Simplex pole pulling jacks, Simplex car jacks, Simplex track jacks. Represented by A. E. Barron, C. A. Crane, Jr., H. M. Hood, W. B. Templeton.

Thayer & Company, Inc., New York, N. Y., space 510. Chillingworth seamless drawn-steel gear case. Represented by G. K. Wannemacher.

Thew Automatic Shovel Company, Lorain, Ohio, space 309, Exhibition Hall. Catalogs, blueprints, circulars, photographs, etc., of the Thew electric shovel especially designed for electric railways. Represented by C. B. Smythe, G. T. Glover.

Thompson, Ernest H., Waverly, Mass., space 314, Exhibition Hall. Combination fare box and automatic coin changer, operated electrically by means of solenoids. Represented by E. H. Thompson.

Tool Steel Gear & Pinion Company, Cincinnati, Ohio, space 624. "Tool Steel" split, solid and forged gears, and "Tool Steel" pinions; also samples to illustrate the hardening and toughening process responsible for their long life and strength; in addition a large collection of "Tool Steel" gears and pinions, that have been in service for a number of years and made interesting mileage records as compared with other grades. Represented by C. E. Sawtelle, E. S. Sawtelle, Leroy Brooks, Jr.

Transportation Utilities Company, New York, N. Y., spaces 582, 583. Treated duck roofing, composition flooring, Chanarch metal flooring, curtain fixtures, brass sash, trap doors for interurban service, metallic steel sheathing, safety step and treads, insulation against heat and cold, sash locks, weatherstripping; steel doors and revolving curtain roller box, Eclipse deck sash ratches. Rep-

resented by W. L. Conwell, H. B. Chamberlain, F. N. Grigg, W. S. Midgley, R. C. Monroe.

Trigger-Lock Reversible Controller Finger, Niagara Falls, N. Y., and Toronto, Ont., space 151, Machinery Building. Trigger-Lock reversible controller fingers. Represented by Richard Russell, E. W. Bennett, R. V. Russell.

Trolley Supply Company, The, Canton, Ohio, spaces 366, 367. Peerless No. 10 trolley base, Simplex trolley base; No. 5 and No. 2 Knutson retrievers, Ideal trolley catcher, detachable fender, pressed-steel headlights, Peerless check valve. J. E. McLain, president; Jos. Hollis, supt.

Union Switch & Signal Company, The, Swissvale, Pa., spaces 133, 135, 137, 139. Track model of block signaling, track transformer, vane type relay, galvanometer type relay, Model 12 polyphase relay. Photographs of installations. Represented by H. W. Griffin, J. W. White, W. W. Talbert, S. E. Gillespie, J. P. Coleman, L. F. Howard, C. E. Denney, J. E. Saunders, H. A. Hamilton, T. W. Siemon, J. S. Hobson, H. McCready.

United States Electric Signal Company, West Newton, Mass., space 401, Annex. Automatic block signals, automatic car counting signals, automatic block light signals, automatic crossing signals, electric track switches, automatic current regulator, trolley contactors. Represented by Roland F. Gammons, second, Roy V. Collins, R. S. Bowen.

U. S. Metal & Manufacturing Company, New York, N. Y., spaces 622, 624, Hotel Men's Annex. Ball-bearing journal jacks, Texoderm seat upholstering, Columbia lock nuts, Anglo-American varnishes, tool steel gears and pinions, multiple unit puttyless skylight. Represented by B. A. Hegeman, Jr., Charles C. Castle, H. A. Hegeman, H. A. Stone, H. S. Norris, H. K. Porter.

United States Wood Preserving Company, New York, N. Y., space 107, Machinery Building. Treated and untreated wood paving blocks. Represented by G. O. Strother.

Universal Lubricating Company, Cleveland, Ohio, space 370, Exhibition Hall. Reception room. Represented by C. B. Arthur, J. C. Daigen, H. T. Curtis.

Universal Safety Tread Company, Waltham, Mass., space 568, Annex. Safety car step treads for car steps, stations, platforms, etc. F. W. Langford, H. Dougherty.

Valentine & Company, New York, N. Y., spaces 582, 583, Annex. Valspar ("The varnish that won't turn white"). Systems of painting railway equipment. Represented by L. B. Valentine, J. H. Munford, Capt. C. Van de Watering.

Van Dorn Coupler Company, Chicago, Ill, spaces 531, 533. Van Dorn makes of standard couplers. Represented by W. T. Van Dorn, H. E. Van Dorn, W. E. Van Dorn.

Waclark Wire Company, New York, N. Y., spaces 381, 383, Exhibition Hall. A "whip" of wire drawn in one piece from a ⅜-in. rod to 0.001-in.; weatherproof cable, bare cable and American standard grooved trolley wire; also a sample board. E. L. Goldschmidt, C. P. Lyman.

Walpole Tire & Rubber Company, Walpole, Mass., space 333. Insulating tapes, insulating varnishes. Represented by F. Y. Stewart, general sales manager; I. W. Penniman, Western sales manager; R. F. Norvell, C. O. Anthony, E. C. Green, general purchasing agent.

Wasson Engineering & Supply Company, Santa Rosa, Cal., distributing point, Milwaukee, Wis., space 613, Annex. Air retrieving trolley base. F. A. Wasson, C. Pfeiffer.

Watson Stillman Company, Aldene, N. J., space 611. Telescopic motor lift jack; 20-ton wrecking jack, 20-ton claw 18 in.; 5-ton special street car jack, No. 4 mounted girder rail bender. Represented by Edwin A. Stillman, A. F. Stillman, Francis T. West, Sterling G. Turner, P. R. Ketzer, Carl Wigtel, R. R. Harrison.

Western Electric Company, New York, N. Y., space 337. Telephone apparatus consisting of telephones for car operation including portable and siding telephones and standard exchange equipment of both wall and desk types, telephone selective apparatus for car dispatching service, telephone switchboards; electric railway material, high-tension insulators, Pyrene fire extinguishers, Western Electric insulating tapes and compounds, trolley wheels and harps, rail bonds and miscellaneous trolley line construction material, car buzzers and signal bells, Shelby trolley poles, arc and incandescent headlights, out-door electric light fixtures; vacuum cleaners for cars. Represented by M. A. Oberlander, P. L. Thomson, F. D. Killion, O. E. Stevens, E. V. Adams, A. G. Kingman, J. C. Enders, J. C. Maxon, New York, N. Y.; J. D. Kennedy, A. L. Hallstrom, S. Greenfield, L. C. Coller, F. C. Jaeger, J. R. Stuard, G. F. Livezey, J. W. Alexander, Philadelphia, Pa.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., space 21. New types PK and HL control systems in actual operation, line switches, relays, commutating pole motors of the split and box frame types for various capacities and voltages from 600 to 1500, motor parts, pressed steel gear case, commutators, armature and field coils, resistors, circuit breakers, lightning arresters, fuse boxes, line and insulating material, model of a portable rotary converter substation. Represented by L. A. Osborne, S. L. Nicholson, C. S. Cook, M. B. Lambert, B. W. Stemmerich, G. B. Griffin, J. G. Miles, H. L. Garbutt, T. A. McDowell, J. C. McQuiston, H. W. Beaumont, A. B. Cole, East Pittsburgh; C. C. Ewing and L. P. Morris, Boston; O. T. Smith, H. N. Ransom, New York; Thomas Cooper, Philadelphia; T. R. Langan, Baltimore; E. A. Thornwell, Atlanta; J. A. Brett, Cincinnati; D. E. Parsons, Pittsburgh; G. S. Vail, Cleveland; P. H. Smith, Buffalo; A. W. Lomis, St. Louis; W. G. Brooks, Chicago; F. F. Rossman, Kansas City; S. J. Keese, Los Angeles.

Westinghouse Lamp Company, space 21. Mazda lamps illustrating the latest developments in the lamp field; concentrated filament headlight lamps for trolley car service; standard Mazda lamps for electric railway service, and also for ordinary uses. T. G. Whaling, C. A. Dostal, A. Larney, W. H. Rolinson, A. A. Ross.

Westinghouse Machine Company, space 21. Turbo-exciter of 50 kw capacity. Represented by E. H. Sniffen, vice-president, in charge of sales; L. L. Brinsmade, Eastern sales manager; H. P. Childs, special representative; M. C. McNeil, commercial engineer.

Westinghouse Traction Brake Company, space 21. Exhibits of various forms of air brake devices and appliances, comprising motor-driven air compressors; motorman's brake valves; electric compressor governors; air compressor synchronizing system; electro-pneumatic train signal system; complete car equipments with electro-pneumatic brakes of most improved construction; slack adjuster; air strainers; extra quality pipe fittings; case hardened bushings, etc. Represented by A. L. Humphrey, Pittsburgh; Walter V. Turner, Pittsburgh; C. J. Olmstead, Chicago; C. C. Farmer, Chicago; H. S. Clark, San Francisco; J. S. Siegrist, Portland; J. R. Ellicott, New York; C. R. Ellicott, New York; W. G. Kaylor, New York; C. P. Cass, St. Louis; C. H. Beck, St. Louis; E. A. Craig, Pittsburgh; C. P. Billings, Pittsburgh; S. D. Hutchins, Columbus, Ohio; R. W. Williams, Atlanta, Ga.

Wharton, Jr., & Company, Inc., Wm., Philadelphia, Pa., spaces 621, 623, Annex. Several styles of girder rail work, including a switch of the Wharton new solid manganese steel H.C.B. type, switch pieces of a new heavy construction for portable crossovers and turnouts, miscellaneous manganese steel castings for cars, a new switch rod for split switches, switch locks, models, pictures of complicated layouts, etc. Represented by V. Angerer, vice-president; W. L. Wright, vice-president; R. C. McCloy, general sales agent; and the following district sales managers: R. D. Chapman, San Francisco; R. C. Hoffman, Baltimore; J. T. Hill, Baltimore; G. R. Lyman, Chicago; H. F. McDermott, Atlanta; J. S. Morrison, Pittsburgh; J. C. Robinson, Boston; C. N. Shaffner, Philadelphia; William C. Wilson, New York.

Wheel Truing Brake Shoe Company, Detroit, Mich., space 505, Annex. Abrasive brakeshoes for operating upon different conditions of wheel wear, including double flanges, flat spots, uneven diameters, long flanges, tread wear, etc. Represented by J. M. Griffin, F. F. Griffin.

Whitmore Manufacturing Company, Cleveland, Ohio, spaces 121, 123, 125. Gears and pinions lubricated with Whitmore's gear protective composition. William Beaser, Jr., Henry Stuckenholt, W. M. Lawyer, S. W. Whitmore.

Whittier Mills Company, Chattanooga, Ga., space 313. Waterproof trolley cord, bell cord. Represented by G. H. Thomas.

Wilson Remover Company and Imperial Car Cleaner Company, Newark, N. J., space 213, Aquarium Court. Wilson paint and varnish removers, Imperial cane cushion cleaning machine and process. Represented by J. Whitney Wilson, J. MacNaull Wilson.

Wood Company, Charles N., Boston, Mass., space 129, Machinery Hall. Chapman automatic signals. Represented by Charles N. Wood, W. M. Chapman, O. E. Chapman.

Woods & Company, Edwin S., Chicago, Ill., space 537, Annex. Roller side bearings and center plates for interurban car equipment. C. D. Jenks, H. M. Perry, A. A. Weigel.

Wyoming Shovel Works, Wyoming, Pa., space 608. Track, and concrete shovels and scoops. G. E. Geer.

Yarnall-Waring Company, Chestnut Hill, Philadelphia, Pa., space 128. Lea V-Notch recording liquid meter, Simplex seatless blow-off valves; Simplex pipe joint clamps, Richards unloaders for air compressors, Simplex Caskey hydraulic valves. Represented by J. Esherick, E. G. Jay, Jr.

BRILL STEEL CARS

ACROSS the Boardwalk from the Pier is one of the Third Avenue Railway Company's Convertible cars of steel frame construction with low platforms and mounted on a Brill "Radiax" Truck. This is one of a second lot of Brill-built cars of this type for the Third Avenue Railway Company, making forty-nine in all. In the Brill exhibit space on the left of the Grand Lobby is a collection of large photographs in an illuminated stand where other recent steel cars are shown. Among them are city types for Cleveland, Salt Lake City, Memphis and Trenton, and interurban steel cars of Michigan United, Jersey Central, Logan Valley, Cumberland & Westernport types and others. These cars all have Brill plate girder sides and are excellent examples of modern steel car building. Aside from the fact that the Third Avenue car is of modern steel construction, the entire design is worthy of a very careful investigation by every street railway official.

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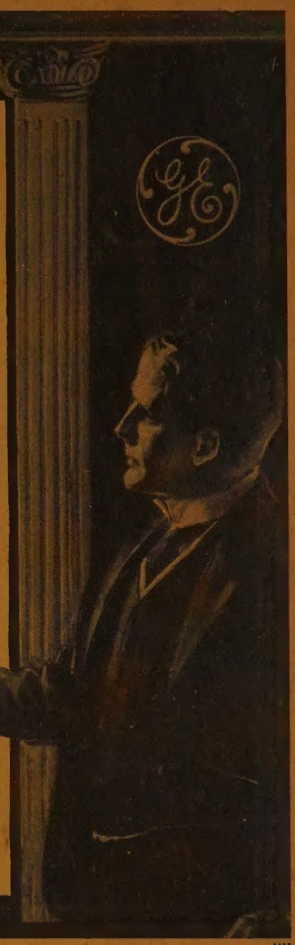
at Booth No. 20

American Electric Railway Association Convention

Atlantic City

October 12-16, 1914



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